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ABSTRACT

This study was conducted to determine the manpower needs of El Paso, Texas, by surveying and interviewing employers in regard to numbers of employees, education and training level preferred, and related employee information. A second purpose was to identity specific kinds of skills needed by EL Paso business and industry. Information was gathered from a final sample of 216 firms employing 34,862 workers, about 25 percent of the work force. Data was tabulated by size of firm and occupation classification. Findings of the study included the following: (1) employers preferred that about 40 percent of their positions be occupied by persons with education or training above high school; (2) only 19 percent of the jobs required no special training, while experience was important for about 60 percent of the jobs; (3) the majority of employers felt that "qualified" employees were hard to find--job performance frequently did not meet expectation due to deficiencies in human relations skills; (4) 65 percent of employers felt that specific training courses would benefit their firms if taught by formal institutions; (5) 84 percent reported providing their own training for employee advancement, and 50 percent did not feel it would benefit their firms if this training was done by a formal institution. The study concludes with a model for a continuing manpower assessment and for related curriculum planning. Survey instruments and tabulated data are appended. (BB)

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EL PASO MANPOWER NEEDS ASSESSMENT FOR EDUCATIONAL PLANNING

By

Leo J. Fiebiger, B.S., M.Ed.

Part of a Comprehensive Manpower Study of
El Paso County, Texas

Submitted to the Division of Occupational Research and Development, Department of Occupational and Technical Education, Texas Education Agency

31 October 1973

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PREFACE

This study is one part of a two-part comprehensive manpower survey done in El Paso County, funded partly by Division of Occupational Research and Development, Department of Occupational and Technical, Texas Education Agency.

The work was done by Research Assistant Leo J. Fiebiger, who was then a doctoral student at New Mexico State University. In effect, this report is Mr. Fiebiger's dissertation.

The other part of the study, which analyzed the education and occupational aspirations and expectations of high school students in El Paso County, completes the comprehensive manpower survey, which will be used as a basis for designing curricular programs to meet not only the needs of the students but also the needs of the employers.

We want to thank a number of people who helped with the study: the employers of the County, who were cooperative in our efforts; the personnel at the El Paso Chamber of Commerce, without whose help we could not have been as successful; the staff of the Office of Manpower Planning of the City of El Paso; and the staff of the Bureau of Business and Economic Research of the University of Texas at El Paso.

We also want to thank the staff of the Texas Education Agency for their help and encouragement and the New Mexico State University who were so generous with their time and efforts, particularly Mr. Fiebiger.

Respectfully submitted,

Alfredo G. de los Santos Jr.
President
31 October 1973

ACKNOWLEDGEMENTS

A great many questions were answered and many problems solved from the conception of this project until this final document was written. Many persons contributed willingly and cheerfully to a project which did not benefit them in any way. For this unselfish assistance the author is deeply indebted.

Special gratitude is extended to the author's advisor, Dr. Gregory P. Maltby, whose words were a source of motivation. In addition, much helpful advice was offered by members of the committee: Dr. Lloyd G. Cooper, Dr. Everett D. Edington, Dr. Timothy J. Pettibone, Dr. Lowery H. Davis, and Dr. Leon A. Wagley.

To complete such a project in a city the size of El Paso, Texas, this author would have been at a loss without the assistance of many individuals in that city. The contributions of advice, encouragement, and material needs for the project made this study possible. For this, thanks go to Dr. Alfredo de los Santos, Dr. Glenn Palmore, Mr. Bill Niland, and Mr. Ben Chavez.

Words could not express the immense help given this writer by the late Peter Mark Roget.

Such a project also has times of hardship and depressing setbacks. For assistance, encouragement, understanding, and "typing it over one more time," the author is eternally grateful to his wife, Yvonne.

ABSTRACT

EL PASO MANPOWER NEEDS ASSESSMENT

FOR EDUCATIONAL PLANNING

BY

LEO J. FIEBIGER, B.S., M.Ed.

Doctor of Education in Educational Administration

New Mexico State University

Las Cruces, New Mexico, 1973

Doctor Gregory P. Maltby, Chairman

In response to a need for information related to manpower requirements unique to El Paso, Texas, several organizations, including the El Paso Community College and the University of Texas, El Paso, united to sponsor a survey of business and industry.

The purpose of the study was to obtain directly from employers data on the job titles, number of positions, transition rate, education, training, and experience preferred. Additional questions related to employee recruitment and training were also asked.

The sample consisted of 100% of the firms employing over 100 persons, 25% of the firms employing between 15 and 99 persons, and about 5% of the firms employing 14 or less persons. The total sample was 538, out of which 216 responses were realized or about a 40% return. Of the responses, 70 were solicited through personal interviews.

The information was transferred to computer cards for analysis. The computer runs consisted of sorting the job titles and related statistics by DOT code (occupational group), by SIC code (industrial group), and by firm size as related to the sampling stratification. The responses to the nine questions were tabulated by SIC code (industrial group) and by firm size. Several of the questions asked that employers specify job titles related to specific questions. These were compiled by question in lists.

The results point to a need for training programs in human relations skills, industrial skills, and more cooperative training programs between industry and education. The data could be used for career counseling, curriculum writing, and administrative decision-making.

The process of collecting the information is in itself a form of public relations for the educational community. It represents the opening of lines of communication between educational institutions and the business community, an important step toward better programs for students.

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Chapter 1

INTRODUCTION

El Paso, Texas, is located in the westernmost part of Texas. Several demographic characteristics make the city unique in comparison to other metropolitan areas of similar size. First, it is on the border of Mexico and the United States. Cuidad Juarez, Mexico, is directly across the Rio Grande River and is a city of approximately 407,000 people (Commercial Atlas and Marketing Guide, 1973). Many people from Mexico enter the United States through El Paso. About 18,000, according to the El Paso Chamber of Commerce, apply for and receive "green cards," permits which allow them to live in Mexico and commute daily to El Paso to work.

The population of El Paso as reported in the 1970 census (U.S., Department of Commerce, Bureau of Census, 1970) was 322,261, of which 54% were Spanish surnamed. The work force of El Paso is approximately 138,000, according to figures released by the Texas Employment Commission. Of the 5,000 employers as reported by the El Paso Chamber of Commerce, the largest business has 8,000 employees.

There also exists a high impaction of federal employees. Fort Bliss, one of the few all-weather training stations for the United States Army, is adjacent to the city.

Table 1, taken from The El Paso Economic Review (Palmore, 1972), which is published by the Bureau of Business and Economic Research at the University of Texas at El Paso, provides a breakdown of the labor force.

TABLE 1

Employment by Industry in El Paso (as of July, 1972)

El Paso industry	Percent of work force employed in industry	Ranking by industry employment
Retail trade	17.66	1
Apparel manufacturing	14.23	2
State-local government	11.80	3
Contract construction	7.28	4
Medical-professional	7.09	5
Services	7.01	6
Federal government	6.90	7
Wholesale trade	6.49	8
Finance	4.20	9
Transportation	3.93	10
Utilities	2.49	11
Primary metals manufacturing	1.87	12
Food-kindred manufacturing	1.75	13

Note.--Taken from "El Paso Business Barometers History," The El Paso Economic Review, July, 1972, as cited in "Job Expansion During the Seventies," The El Paso Economic Review, October, 1972, published by the Bureau of Business and Economic Review, University of Texas at El Paso (Palmore, 1972).

Second only to retail sales is the apparel industry. It is really the only major manufacturing industry in the community since it accounts for nearly 16,000 workers.

Federal, state, and local governmental agencies account for the largest percentage of the work force, 18.7% or more than 20,000.

Government spending, therefore, greatly affects the economy of the area and subsequently the manpower scene.

Educational services are provided by public elementary and secondary schools, a vocational high school, a university, and a newly formed community college.

The conception and development of training programs to meet the manpower requirements of business and industry in conjunction with the educational needs of the students requires knowledge about the existing positions and their training requirements. Originally this study was to deal primarily with the skill levels needed for job entry to various positions. This information would be used as a foundation for the development of the criteria for curriculum development at El Paso Community College.

In the initial stages of the study the researcher learned that other agencies were not only interested in such information, but were formulating plans to conduct a similar survey. This type of duplication would have not only been a waste of effort on the part of the organizations, but would have also inconvenienced employers to an unnecessary extent.

In early November of 1972, a meeting was held to develop a united endeavor. At the organizational meeting, representatives agreed to cooperate in an effort to obtain the information to meet the requirements of each organization. Dr. Alfredo de los Santos, President of El Paso Community College, represented that institution; Bill Niland, National Alliance of Business; Ben Chavez,

Manpower Planning, City of El Paso; Dr. John Richards, Dean of the College of Business, University of Texas at El Paso; and Dr. Glenn Palmore, the Bureau of Business Research.

The objectives of this united project were to: first, assess the demand for manpower; second, determine the capabilities of those people who have attended various training institutions; and third, attempt to balance the supply with the demand. However, this dissertation deals only with the first objective.

The rapid growth of El Paso causes pre-gathered sources of data to be incomplete. The 1970 census (U.S., Department of Commerce, Bureau of Census, 1970) reported the total work force of El Paso to be 114,019. As of September 1972, according to the Texas Employment Commission (1972), the total civilian work force was 141,350, a gain of more than 20%. It is evident, with such growth, that it is advisable to devise a system to update manpower counts on an annual basis.

Statement of the Problem

At this time there does not exist a complete survey of the employment opportunities in El Paso, Texas. Institutions wishing to establish a curriculum or counseling services do not have information regarding the kind and level of skills for entry to the various occupations, and no procedure has been set up to collect these data on an annual basis.

In addition to the problem of determining the number of employees in various firms, it is desirable to know the educational

and experience requirements for the different positions. Ultimately these are determined by the firms since in all but a few licensed professions the employers decide who is qualified enough for a given position.

Changes in requirements may also result from growth and technological changes.

Once the data have been gathered, their validity diminishes with the passage of time due to the changes which occur.

Purpose of the Study

In the development of an educational plan to train for various occupations, it is necessary to know the requirements of the positions for which students are being prepared. There must also be built into the system a method of flexibility which can react to changes in labor market demands. The information on which the curriculum is based must be updated to current needs on a regular basis.

It was the purpose of this study to determine the following:

1. The different positions of employment available in El Paso, Texas.

2. The number of each of the different positions that exist.

3. The turnover rate for each position during the past 12 months. (This rate was determined by comparing the number of employees who left a position to those employees who entered that position during the past 12 months.)

4. Projected growth of personnel needs during the next 12 months as determined by the employer.

5. The education and training employers prefer for each position.

6. Identification of occupational categories in which employers feel there is difficulty obtaining adequately trained people.

An additional benefit, although difficult to document with any precision, was the opening of lines of communication between the business community and the educational institutions involved in the survey. This involvement of industry in educational planning should increase the mutual understanding between schools and the community. Since schools receive the bulk of their finances through tax dollars, any improvement in public image is a definite asset.

Burt (1967) made this statement:

> The close working relationships thus developed by school staff, in addition to the relationships developed through carefully structured and properly managed industry-education committees do result in overcoming many of the misunderstandings which arise between educators and representatives of industry [p. 42].

It was noted by this writer during the course of interviewing employers that many felt the educational system was unconcerned about their manpower needs. Many seemed grateful that they were being asked to give their opinions.

Assumptions of the Study

The following items were assumed by the investigator to be true:

1. Personnel directors and employers have answered the questionnaires honestly and to the best of their ability with the information they have at hand.

2. Interviewers have conducted interviews as instructed.

3. The information gathered is not an end in itself, but is to be used by those working with manpower planning and educational planning.

4. Information gathered would yield a data base on labor statistics in El Paso and would provide a foundation for updating the study on an annual basis.

Limitations of the Study

The parameter of this study was the business and industry of El Paso, Texas. Reports which are made as a result of the information gathered are limited to the El Paso community.

Data were collected during the months of February and March of 1973. With the passage of time, the information is subject to obsolescence since employment requirements are subject to change, depending on economic and technological changes.

Medical facilities, such as hospitals, clinical facilities, and dental facilities, were excluded from the sample because this area was being analyzed extensively by a research firm, Losh and Associates.

Definitions of Terms

Skill. Any ability which requires experience or formal training or both in order to produce satisfactorily.

Profession. Any occupation which requires a formal period of training at a college or technical school and graduation prior to being considered for employment.

Occupational area. Any area which requires similar skills and aptitudes but may serve different industries.

Formal institution. A public or private vocational school, college, or university.

Category I firm. A business or industry in El Paso, Texas, employing 100 or more people.

Category II firm. A business or industry in El Paso, Texas, employing between 15 and 99 people.

Category III firm. A business or industry in El Paso, Texas, employing 14 persons or fewer.

Standard Industrial Classification (SIC) Code. A numbering system for identifying different types of firms, prepared by the U.S. Executive Office of the President, Bureau of the Budget, Technical Committee on Industrial Classification, Office of Statistical Standards (1957).

Dictionary of Occupational Titles (DOT) Code. A system of assigning numbers to employment positions, prepared by the U.S. Department of Labor, Manpower Administration, Bureau of Employment Security (1965).

Manufacturing, soft. Those industries in SIC Group 200-299, as defined by the Standard Industrial Classification Code, which are engaged in the manufacture of food, tobacco, textiles, apparel, lumber-wood products, furniture, paper printing, chemicals, and petroleum products.

Manufacturing, hard. Those industries in SIC Group 300-399, as defined by the Standard Industrial Classification Code, which are engaged in the manufacture of rubber, stone, clay, glass, concrete, and metal products; machinery; electrical supplies; and transport and professional equipment.

Chapter 2

REVIEW OF THE LITERATURE

This chapter reviews the literature especially pertinent to manpower and skill needs survey. Following an introduction, the sources and need for occupational information are discussed. Several assessment studies are cited as to purpose and use. Projection of manpower needs is discussed, with special reference to annual updating.

Introduction

Employer input into training programs for a particular job undoubtedly dates back beyond recorded history. The guilds were early examples of on-the-job training programs. However, as the complexity of modern technology has increased, it has become more expedient for man to receive at least part of his vocational training in the setting of an institution of society which has teaching as its goal rather than production.

The institution must not lose contact with the organizations which utilize the skills of those trained. Berg and Gorelick (1971) discussed the problems caused by this dichotomy between industry and education.

The literature offers suggestions for keeping business and education in communication. Thus, in recent years, there has been a trend for educational institutions to seek information directly

from employers regarding the requirements of specific jobs and the number of people needed. Two methods of increasing communication between education and business and industry were discussed by Burt (1967), who recommended first conducting manpower and skill needs surveys and then utilizing advisory committees from the community for more precise program development.

Planning of manpower programs has several phases. However, this study deals only with the initial aspect, i.e., manpower and skill needs survey. Therefore, further discussion is provided only for that aspect of program planning.

Source, Need, and Purpose of Occupational Information

Manpower planning information may vary in type of source. Although the U.S., Department of Commerce, Bureau of Census (1970) gives a very general background of the type of industry and occupation makeup of the present population, this agency does not attempt to define qualifications or any supply and demand information.

State employment offices frequently issue reports on the types of skills or positions various employers are seeking. However, it was pointed out to the investigator by Mr. Ben Chavez, Director of the Manpower Planning Office, El Paso, Texas, in a meeting in December 1972, that many employment offices indicate as potential openings only those which are listed with them, and that many employers utilize either private agencies, newspaper advertisements, or school placement offices. However, neither

the census nor the employment security commission can be overlooked as sources or indicators.

Writers on this subject support the idea of contacting business and industry directly. In his manual under a section titled "Decisions/Curriculum Planning and Development," Johnson (1964) stated that community surveys can be useful in two ways. First, the findings are useful for curriculum planning; and second, the process can involve leading citizens and encourage their support, a point that cannot be overlooked.

Wallace (1970), in an article for the American Vocational Journal, considered an assessment of the local employment community a major step in the development of any training program. Voelkner (1972), in an article for the same journal, said job availability must be known prior to launching any new programs.

Blocker, Plummer, and Richardson (1965) implied the need to contact the employer by setting the following guideline as part of the requirement for a technical program: "The curriculum must be related closely to the requirements for skills, knowledge, and understandings of the occupation or group of occupations [p. 217]."

A number of studies have been done to determine the manpower needs of a geographic area. Many were conducted with the specific objective of determining curriculum for community colleges or vocational schools. The Pennsylvania Department of Public Instruction (1965) published a document entitled Guidelines for the Establishment of Public Community Colleges in Pennsylvania. This document

pointed out that Section 2(5) of the Community College Act of 1963 requires a survey of business and industry to determine educational and training needs prior to the establishment of a public community college.

In Dona Ana County, New Mexico, Edington and Andrews (1971) conducted an occupation survey of the area. The purpose of this study was to determine the positions which existed in the county and also the training required. As the study revealed, many positions require some training for initial employment, but further training after being employed would also be of value. The results of the survey were used as criteria in the establishment of a branch vocational technical school at New Mexico State University.

Wagley (1964) carried on similar research in agricultural business occupations in Yuma County, Arizona. His findings were used to increase employer input into the curriculum planning of agricultural vocational programs. Of those surveyed, 81% indicated an interest in assisting curriculum planners.

The Catawba Valley Technical Institute sponsored an occupational skills survey of their impact area in North Carolina. This survey covering six counties was directed by Craven H. Sumerell (1968). At the time the study was conducted, the institute offered 17 2-year programs and 7 1-year programs. Recommendations as a result of the survey indicated a need to add 15 additional 1-year programs. This provided evidence to justify the expansion of facilities, programs, and faculty.

Projection of Manpower Demands

A difficult problem in the assessment of the jobs and skills availability picture is that as soon as the survey is complete, the data begin obsolescence. Projection of manpower demand was stressed by Venn (1970):

> Manpower demand is, of course, fundamental to the successful utilization of a trained manpower supply. It is also the most directly affected by changes in the total economy brought about by new knowledge and improved efficiency in production and services. Yet this is the component of manpower policy which has had little attention. . . . There is a major need to project labor demand and, in cooperation with other federal agencies concerned with economic policies, to determine the demand for labor supply far in advance of present conditions [p. 214].

This information is necessary for planning programs at secondary, postsecondary, college, and adult levels of education.

Perhaps for good reason, projections are greatly mistrusted by many people. Economic developments can change job situations quickly in either direction. Consider, for example, the plight of the Seattle area in the late sixties when Boeing Aircraft Company reduced its work force by thousands.

Another factor to consider is the lag between the expressed need for personnel in a given skill area and the time required to train people. Occasionally a technological development eliminates the need for the people who are completing the program. They are therefore trained for an obsolete position.

To alleviate this situation to some degree, most studies attempt some form of projection. A handbook entitled Handbook on

Employment Security, Job Market, Research Methods/Area Skill Survey, published by the U.S. Department of Labor (1965), has served as a guide for much occupational research. In this manual is the suggested projection technique consisting of asking the employer to forecast his manpower needs from 1 to 5 years. However, this becomes at best a guess in many instances.

It is known that the Dallas, Texas, Chamber of Commerce sponsored a survey of Dallas to forecast manpower needs for a 10-year period from 1965 through 1975. This researcher contacted the Dallas Chamber of Commerce and was informed that copies of this study were no longer available since the information failed to hold accuracy for more than a couple of years.

As recently as 1970, the Wisconsin Department of Industry, Labor and Human Relations (1970) compiled a comprehensive manpower study, Project Vision: An Experiment with Occupational Needs Projection Techniques. Here, from the text of the final report, is a comment on projection problems:

> Some other aspects of the survey were less successful. This was particularly true of the choice of three and five years as the time expanse for the two projection periods for future employer needs by occupation. Since it was found that the average employer did not make his forecast on a scientific or formal basis, it is concluded that the long forward estimates are subject to an unknown degree of error [p. 34].

It is possible that some researchers are expecting too much of projections. Edgel (1968) indicated that projections as numbers alone are not useful; however, combining them with the

understanding of those economic and social trends on which the projection is made adds greatly to their value. To do this might necessitate a study of the underlying economic factors which could be more difficult than the original manpower study.

Updating Occupational Information

Labor market demands are continually changing. Growth, technology, and factors leading to worker turnover create a very unstable situation for manpower development. It is therefore necessary to continually keep educational programs in line with market needs. Recognizing this necessity, the Chamber of Commerce, Pittsburgh, Pennsylvania, sponsored a job skills survey which began in 1965 and continued each year through 1969. (Jarrell & Hleba, 1965-1969). The purpose of this continuous study was to provide schools with updated information regarding area needs for trained personnel. These statistics were compared to data on school graduates. By comparing the trend of employer needs to current emphasis in school programs, shifts could be made to concentrate on the more needed programs. Perhaps the most logical way to stay abreast of these statistics is to update them on an annual basis. In a telephone conversation, November 22, 1972, this investigator discussed the Pittsburgh project with Mr. Theodore Hleba, Manager of Educational Affairs, Chamber of Commerce of Greater Pittsburgh. Mr. Hleba pointed out that the Chamber would continue their job and skills survey in 1973.

A study similar in purpose to that of the Pittsburgh Chamber of Commerce, i.e., aligning educational programs with current business and industry needs, was conducted by the Wisconsin Department of Industry, Labor and Human Relations (1971). The study originally surveyed two Wisconsin counties, with a third added later.

To compound the problem of manpower planning, persons educated and experienced in a given job or profession frequently elect to seek a very different means of earning a livelihood. This job mobility requires an organized system for training and retraining. According to Venn (1970), within the next 40 years the average person will change occupations five times. Job mobility leads to the need for adult retraining programs. Berg and Gorelick (1971) emphasized this need with the following statement:

> It would also be desirable from all points of view if those who failed to take full advantage of their educational opportunities in their youth had a second chance, after discovering themselves and developing the attitudes that serve the learning process, in a system of adult education [p. 190].

On the national level, other countries have seen the necessity for continuous appraisal and reappraisal of the manpower situation. For example, in Peru the National Planning Institute had been pulsing the country's economic and social situation since 1963 (Gass, 1970). Although projections were employed, the report was brought up to date annually.

Also at the national level, the U.S.S.R. has had a series of 5-year plans for their educational system. The first of these

plans, 1927-32, had, among many other goals, large-scale vocational training and the preparation of qualified specialists and scientific workers. In a publication discussing this subject, Nozhko, Monoszon, Zhamin, and Severtsev (1968) described the two methods used by educational planners in the U.S.S.R. The first method is the extrapolation of trends in staffing by various segments of society. The second method is described as follows:

> . . . The other, more analytical, is based on detailed surveys carried out in factories and departments, designed to ascertain their trained-personnel requirements during the plan period on the basis of a nomenclature of positions to be filled by "specialists" who have received secondary specialized or higher education [p. 258].

In order to meet the manpower demands of industrialization in the U.S.S.R., it was necessary to train large numbers of people. Although the plans were interrupted briefly by World War II, the practice of utilizing needs surveys for planning began again at the close of the War and was continued at least to 1968 when the book was published.

Conclusion

The immediate area of concern to this researcher was El Paso, Texas. Although each metropolitan area has unique characteristics, similarities to other areas allow planning based on the experiences of other completed manpower surveys.

In January 1973, a comprehensive study of the health care needs of El Paso was conducted by Norman L. Losh and Associates (1973) of

Littleton, Colorado. Included in the Losh study was a health care manpower needs assessment. Their findings are presented in Appendix A. This area was therefore omitted from the present study.

An assessment of the present manpower situation, a method of projecting manpower demands, and updating this information on an annual basis--each of these procedures has some merit. This researcher believes it is well advised to evaluate each of these approaches when considering the survey procedure.

Chapter 3

METHODOLOGY

The contents of this chapter deal with the development of a method for collecting the desired data, including the construction and testing of the questionnaire. This is followed by a discussion of the sampling procedure. Procedures for gathering the data, including methods of increasing response, and treatment of the data are then described.

Development of the Questionnaire

It was the opinion of the researcher after a review of several previous studies that there was no developed questionnaire that would suffice for this study. Three excellent examples of studies with similar objectives were identified and used as models. Utilizing these as guides, the writer constructed the initial form of the questionnaire. Project Vision (Wisconsin Department of Industry, Labor and Human Relations, 1970), the Pittsburgh study (Jarrell & Hleba, 1965-1969), and the Catawba Valley study (Sumerell, 1968) each had questionnaires which were in part applicable to this research. These studies were discussed in greater detail in the "Review of the Literature."

The researcher worked in close communication with the organizations in whose behalf this study was being conducted. Representatives of these organizations agreed that prior to collecting the

data there should be input from a sample of those firms which would ultimately be responding to the questionnaire. In late December 1972 and early January 1973, the researcher contacted businesses and local "experts" in El Paso for suggestions on improving the questionnaire. A total of 17 firms were contacted. With the help of personnel directors, managers, and business owners, the questionnaire was developed to meet the needs of the project and to be compatible with the variety of businesses being sampled.

The Sample

The target population for this survey was the businesses and industries of El Paso as listed with the El Paso Chamber of Commerce. The total compilation included more than 5,000 employers. This list of firms and relative size with respect to number of personnel was obtained from the workman compensation insurance records, Texas Workmen's Compensation Insurance Division, El Paso. All employers are required by law to provide this insurance for employees; therefore, this list is quite complete and current.

To provide a cross-sectional sample of the firms, it was necessary to utilize a random, stratified sampling technique. The employers were divided into three categories on the basis of number of employees as follows:

Category I - firms with 100 or more employees

Category II - firms employing between 15 and 99 employees

Category III - firms employing less than 15 employees

In reference to Category I, in the city there are about 140 businesses employing more than 100 people each. All of these firms were contacted.

The second category contained about 900 employers. These were firms with from 15 to 99 employees. Of these firms, 25% were included in the sample.

The final group (Category III) was comprised of firms employing fewer than 15 people. In El Paso that size of employer accounts for approximately 3,800 businesses. This group is sometimes excluded from surveys because they do not account for many employees. However, they compose the majority of employers; and certain types of businesses, such as real estate companies, consultancy establishments, independent insurance companies and the like, often are inherently small. Therefore, 5% of these companies were selected for participation in the study.

Gathering the Data

The initial contact with each firm in the sample was by mail. Therefore, each envelope sent contained the following materials:

1. The cover letter naming the involved organizations and explaining the purposes of the survey. This cover letter was signed by Mr. Ted Karam, a successful businessman and President of the National Alliance of Businessmen in El Paso. (See Appendix B, Form A.)

2. The section of the questionnaire on which employee job titles, numbers of employees, turnover information, and training

requirements were to be indicated (Appendix B, Form B). A second form, consisting of blanks for additional listings, was enclosed for larger firms with more job categories (Appendix B, Form B-2).

3. The questionnaire portion dealing with special issues of the employment situation (Appendix B, Form C).

4. A stamped, self-addressed envelope for returning the questionnaire.

As with most research which depends on responses being returned by mail, it was necessary to develop a follow-up procedure for non-respondents. Two weeks after the survey was mailed, the firms which had not responded were telephoned and politely urged to respond. In some cases the questionnaire had been lost or had not reached the personnel department. A duplicate packet was then sent to the firm. After 3-1/2 weeks from the original mailing, firms not responding were again contacted to arrange for personal interviews in order that the data could be obtained. Form C of the original questionnaire was modified slightly to facilitate the interview (Appendix C).

In total, four interviewers worked on the project. All except the writer had previous experience gathering research data utilizing personal interviews. To be certain the objectives of this project were clear, each interviewer was given special instructions and individual training (Appendix C).

In order to increase the number of responses, a firm of similar size and type was substituted and contacted if the original firm had gone out of business or moved to another city.

Treatment of the Data

To facilitate the use of a computer in sorting the information from the questionnaires, a coding system had to be utilized. Each firm was coded with the first three digits of the Standard Industrial Classification (SIC) prepared by the Technical Committee on Industrial Classification, Office of Statistical Standards. Each job or position as listed by the employer was given a three-digit code as prescribed by the Dictionary of Occupational Titles (DOT). This system was selected since it is used by the Department of Labor and other organizations which do labor statistics for government projects. This standardization would permit easy comparison with census data should it prove to be desirable at some future date.

After all responses had been coded, the information was punched on computer cards for sorting. The analyses of these data were by firm size as sampled, SIC sequence, and DOT sequence. All runs were made on a CDC-1350 computer at the University of Texas, El Paso, under the direction of the Bureau of Business and Economic Research. The breakdown of the analyses is provided in the next chapter.

Chapter 4

PRESENTATION OF THE DATA

The compilation and interpretations of the data collected are contained in this chapter. Two parts of the questionnaire (Appendix B) are considered. The first part (Form B) is comprised of job titles, number of positions, transition information, anticipated growth, and experience and education requirements. The second part (Form C) deals with employers' responses to nine questions related to employee acquisition.

Sample Responses

The total sample included 538 firms of which 216 questionnaires were completed for analysis, representing approximately a 40% response. One hundred and forty-six questionnaires were returned by mail and an additional 70 were obtained through interviewers in direct contact with the personnel director or firm manager or owner. The number and percent of return by size of firm are summarized in Table 2.

The labor force of El Paso, Texas, as reported in the October 1972 issue of Manpower Trends, published by the Texas Employment Commission (1972), was anticipated to be 138,000 by December 1972. Therefore, the responses covering 34,862 jobs were about 25% of the total employees.

TABLE 2

Questionnaire Responses According to Size of Firm

Firm size	Total sample	Mail return		Interview return		Total return	
		No.	%	No.	%	No.	%
Category I	143	44	31	22	15	66	46
Category II	226	78	34	13	6	91	40
Category III	169	25	14	34	20	59	35
Total	538	147	27	69	13	216	40

Job Category Analysis--Form B

Form B (Appendix B) is that section of the questionnaire which solicits from the employer the job title, number in that position, turnover information, anticipated growth, education and training preferred, experience required, and promotional opportunities from that position.

The job title given by the employer identifies indirectly the skills needed. The number of positions when totaled for a specified job title and DOT classification enable the researcher to combine similar jobs which are utilized by different industrial groups (Form B, Columns A, B, and C).

Columns D, E, and F lend to determining if, according to the sample, a specific job is increasing or decreasing in demand. The difference between Column D (number promoted plus the number that left the firm) and Column E (number brought into the position from inside the firm plus the number brought in from the outside) gives

the relative demand direction during the past 12 months. If more people left than were hired, the demand is decreasing; however, the demand is increasing if the reverse is true.

It is also possible to ascertain if the given job is an entry level position for a particular firm. If most of the people are promoted to the job from within the firm, it is not an entry level position. But if people are hired from outside, it is an entry level job. Also, the number of people promoted from a specified job can give an indication if this job is a "stepping-stone" to a different position.

Column F of Form B is the employer's estimation of the number of additional slots that will open during the next year. This, together with the statistics from Columns D and E, gives a general indication if the demand for a particular skill is increasing or decreasing.

In Column G the employer checks the education attainment and training level he prefers for people in the specified job and Column H determines if the employer wishes experienced employees. Promotional opportunities from that position to another in the company are indicated in Column I.

In order to present the information from different aspects of employment, computer runs were made according to SIC Code, DOT Code, and firm size as sampled. An aggregate of these results is shown in Table 3.

TABLE 3

Analysis of Employment Positions in El Paso

Aggregate Report

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	2,433		35.65	
Left firm	4,391		64.35	
Total		6,824		19.57*
Employees brought into vacancies during last 12 months				
From within	2,482		34.31	
From outside	4,752		65.69	
Total		7,234		20.75*
New positions anticipated within next 12 months		2,807		8.05*
Education: employers indicating preference				
Less than high school graduate		224		13.90
High school graduate		523		32.42
Some post-high school vocational education		165		10.22
Two year post-high school technical grad.		104		6.42
Some college (1-3 years)		186		11.53
College graduate (4 years)		198		12.28
No preference		213		13.22
Training: employers indicating preference				
Formal on-the-job training		956		66.23
Apprenticeship training		128		8.88
No special training required		276		19.14
Other		83		5.76
Experience Required				
Yes responses		926		58.22
No responses		664		41.78
Promotional Opportunities				
Yes responses		1,175		79.07
No responses		311		20.93

*Percent of total positions analyzed—34,862

Table 3 indicates that 19.57% or 6,824 individuals, of the 34,862 employed, left a specific position during the last 12 months. Of those people, over one-third (2,433) were promoted and almost two-thirds (4,391) left the firm. Hired into new positions during the last 12 months were 20.75% or 7,234 employees. Of that number, about one-third (2,482) were promoted into that position from within the firm and approximately two-thirds (4,752) came to their new job from outside the firm. The new positions anticipated by employers during the next 12 months were estimated to be 2,807 people or about 8%.

Employers were asked to indicate their preference for education or training for each job title they listed. Those responding gave an educational preference as follows: less than high school, 13.90%; high school graduate, 32.42%; some posthigh school vocational training, 10.22%; 2 years posthigh school graduate, 6.42%; some college (1-3) years, 11.53%; college graduate, 12.28%; and no preference, 13.22%. Training preferences indicated by employers were: formal on-the-job training, 66.23%; apprenticeship training, 8.88%; no special training, 19.14%; and other, 5.76%.

Employers exhibited a desire for experienced personnel in 58.22% of the jobs tallied. However, once a person is employed, promotional opportunities exist in eight out of 10 positions. Only 20.93% of the job areas were designated as having no advancement possibilities.

These analyses of the information gathered on Form B have been done by various breakdowns which are presented in Appendices D, E, and F. The specific categories are: Categories I, II, and III (size of firm) (Appendix D); major industry classifications (SIC) (Appendix E); and major occupational groupings (DOT) (Appendix F).

Manpower Needs as Perceived by Employers--Form C

The analyses of responses to Form C of the questionnaire (Appendix B), questions one through nine, are presented in four parts. Firms' answers to each question are shown in percents and listed by the following breakdowns: the total aggregate of all responses, the categories according to number of employees, the major industry divisions according to the Standard Industrial Classification, and the individual responses of the employers. These four methods are utilized so that if significant differences exist, they are made more evident by the presentation.

Lists of skills or positions related to the various questions as identified by employers are supplied in total in Appendix G. Each response and the number of times that particular response was cited are recorded in the appropriate list. Although some of these lists are somewhat redundant and lengthy, they are presented in total so that the reader may see the responses as they were given.

Question one. Are qualified employees difficult to find? If yes, list skills and professions involved.

The results of this question are summarized in Table 4 and List 1, Appendix G. It is clear that nearly 70% of the total respondents felt that, in at least some skill areas related to their firms, qualified employees are difficult to find. Only in two major industrial classifications, Transportation-Communication-Utilities and Government, were the "yes" responses less than 50%. In all other categorical breakdowns, the "no" responses were 40% or less.

As the question was analyzed on the basis of size of firm, a greater percent of Category I firms indicated difficulty in obtaining qualified employees. However, in all categories substantially more than 50% responded "yes" to the question.

List 1 (Appendix G) gives the 200 skills or positions employers listed as being short of qualified persons. The majority were positions or skills which require either formal training or extensive on-the-job experience. The reader will note that many of these same positions appeared as problem areas related to other questions of this survey. The job titles which appeared most frequently on the list were sales, mechanics, accountants, cashiers, managers, secretaries, truck drivers, welders, and electricians.

Question two. Does your firm utilize a skill or profession for which you must seek employees from outside the El Paso community? If yes, list skill or profession involved.

TABLE 4

Responses to Question 1: Are Qualified Employees Difficult to Find?

Classification	No opinion (percent)	"Yes" responses (percent)	"No" responses (percent)
By major industry			
Agriculture, Mining, and Construction	----	80.95	19.05
Manufacturing, soft	----	80.00	20.00
Manufacturing, hard	6.67	73.33	20.00
Transportation, Communication, and Utilities	----	40.00	60.00
Wholesale and Retail trade	----	65.82	34.18
Finance	4.00	56.00	40.00
Services	----	78.79	21.21
Medical, Health, Education, and Legal	----	72.73	27.27
Government	----	33.33	66.67
By firm size			
Category I	----	73.24	26.76
Category II	1.85	62.96	35.19
Category III	----	65.52	34.48
By aggregate			
Aggregate of all responses	.84	66.81	32.35

Twenty-three percent or about 50 firms indicated the need to seek employees from outside the El Paso community. Of the 50 areas recorded in List 2, Appendix C, most were specialized skills which are obtained either through experience, special training programs, or a combination of both. Some examples from List 2 are attorneys, social workers, copywriters, managers, senior engineers, and printers. Many of the listings were identical to those mentioned in question one.

A higher percent of the Category I firms found it necessary to recruit employees from places other than El Paso. By industry, 53% of those manufacturing "hard" products indicated they recruit for some positions from out of the community. This was higher than any other industrial group, as illustrated in Table 5.

However, it is incorrect to assume that because the person is recruited from outside the community he is necessarily difficult to obtain. In fact, some firms interviewed indicated they had a preferred source on which they relied each time a person with a particular skill was needed.

Question three. From what sources do you obtain employees who require prior training?

Nine options were given employers from which to make a choice. Table 6 summarizes the employers' areas of preference for obtaining new employees. The rank order was determined by the frequency with which each item was checked. Most employers marked more than one area. The method most frequently chosen was direct application.

TABLE 5

Responses to Question 2: Does Your Firm Utilize a Skill or Profession for Which You Must Seek Employees from Outside the El Paso Community?

Classification	No opinion (percent)	"Yes" responses (percent)	"No" responses (percent)
By major industry			
Agriculture, Mining, and Construction	----	28.57	71.43
Manufacturing, soft	----	32.00	68.00
Manufacturing, hard	----	53.33	46.47
Transportation, Communication, and Utilities	5.00	10.00	85.00
Wholesale and Retail trade	2.53	16.46	81.01
Finance	4.00	20.00	76.00
Services	3.03	15.15	81.82
Medical, Health, Education, and Legal	----	36.36	63.64
Government	----	33.33	66.67
By firm size			
Category I	1.41	40.85	57.75
Category II	1.85	12.04	86.11
Category III	3.45	18.97	77.59
By aggregate			
Aggregate of all responses	2.10	22.69	75.21

TABLE 6

Responses to Question 3: From What Sources Do You Obtain Employees Who Require Prior Training? (By Aggregate)

Source	Priority ranking
Direct application	1
Present staff (within)	2
Public employment office	3
Private employment agencies	4
Colleges and universities	5
Other (List 3, Appendix G)	6
Secondary schools	7
Labor unions	8
Proprietary schools	9

Under the "Other" heading, blanks were provided in the questionnaire for indicating additional sources or methods. These are summarized by entry and frequency in List 3 in Appendix G. Advertising in the media was one of the major methods mentioned, other than those given on the questionnaire.

Question four. Would you like to see prospective employees better trained in any skill or profession? If "yes," list area.

The overall 66% "yes" response to this question was to be expected. The list of skills mentioned was similar to those given

in prior questions. Most of the skills cited are common to the everyday world of work. (See Appendix G, List 4.)

The percent of "yes," "no," and "no opinion" responses is presented in Table 7. Although the implication is that the majority of employers wanted prospective personnel to be better trained, it was learned by the investigator during personal interviews that in some cases the employee was adequately trained in his skill or profession. However, many lacked the variety of training needed for additional responsibilities that come with promotion.

Question five. In what skill or profession would your firm be better served by additional training programs in formal institutions?

As is apparent in List 5, Appendix G, the 85 skills mentioned varied from basic knowledge to specific technical skills. Many areas were already covered by specific training programs in the El Paso community. Others were so very specialized and the demand in El Paso quite limited. Skills cited most frequently were: sales, auto mechanics, secretaries, dealing with the public, and production control methods.

Question six. Do you train personnel presently employed with your firm for the purpose of promoting or advancing them? If yes, list skills involved.

TABLE 7

Responses to Question 4: Would You Like to See Prospective Employees Better Trained in Any Skill or Profession?

Classification	No opinion (percent)	"Yes" responses (percent)	"No" responses (percent)
By major industry			
Agriculture, Mining, and Construction	14.29	71.43	14.29
Manufacturing, soft	-----	80.00	20.00
Manufacturing, hard	33.33	53.33	13.33
Transportation, Communication, and Utilities	25.00	55.00	20.00
Wholesale and Retail trade	6.63	68.35	25.32
Finance	16.00	56.00	28.00
Services	18.18	69.70	12.12
Medical, Health, Education, and Legal	18.18	63.64	18.18
Government	11.11	44.44	44.44
By firm size			
Category I	9.86	76.06	14.08
Category II	18.52	58.33	23.15
Category III	6.90	65.52	27.59
By aggregate			
Aggregate of all responses	13.03	65.55	21.43

Question seven. If your answer to question 6 was yes, would it be beneficial to your firm if this training were done by a formal institution?

Since questions six and seven are interrelated, both will be discussed in this section.

Table 8 clearly indicates that most firms conduct training programs in some form for their employees. Interviews, however, revealed there was a great difference in the methods. The most elaborate observed by the investigator was a mechanic and machine shop classroom with five students, a more than one hundred thousand dollar investment, and a full-time instructor who had an earned master's degree in industrial education. On the other end of the spectrum, some employers indicated they spent only a few minutes orienting a new employee to a simple operation. Regardless of the magnitude and cost of the in-house training program for the orientation and advancement of employees, 50% of the employers did not feel the training could be accomplished outside the firm. (See Table 9.) This point was discussed with a number of employers. Some employers expressed the view that educational institutions could not be expected to conduct programs to fit the variety of needs of private businesses. The diversity of equipment and procedures requires that even a well-trained person needs orientation prior to becoming an effective employee. For example, in sales it is a matter of product orientation. A small minority stated flatly

TABLE 8

Responses to Question 6: Do You Train Personnel Presently Employed Within Your Firm for the Purpose of Promoting or Advancing Them?

Classification	No opinion (percent)	"Yes" responses (percent)	"No" responses (percent)
By major industry			
Agriculture, Mining, and Construction	----	90.48	9.52
Manufacturing, soft	----	100.00	-----
Manufacturing, hard	----	100.00	-----
Transportation, Communication, and Utilities	5.00	95.00	-----
Wholesale and Retail trade	2.53	79.75	17.72
Finance	----	92.00	8.00
Services	9.09	60.61	30.30
Medical, Health, Education, and Legal	----	72.73	27.27
Government	----	100.00	-----
By firm size			
Category I	1.41	92.96	5.63
Category II	1.85	87.04	11.11
Category III	5.17	68.97	25.86
By aggregate			
Aggregate of all responses	2.52	84.45	13.03

TABLE 9

Responses to Question 7: If the Answer to Question 6 Was Yes, Would It Be Beneficial to Your Firm If This Training Was Done by a Formal Institution?

Classification	No opinion (percent)	"Yes" responses (percent)	"No" responses (percent)
By major industry			
Agriculture, Mining, and Construction	9.52	42.86	47.62
Manufacturing, soft	4.00	32.00	64.00
Manufacturing, hard	13.33	46.67	40.00
Transportation, Communication, and Utilities	5.00	15.00	80.00
Wholesale and Retail trade	17.72	37.97	44.30
Finance	8.00	44.00	48.00
Services	42.42	15.15	42.42
Medical, Health, Education, and Legal	18.18	45.45	36.36
Government	22.22	22 22	55.56
By firm size			
Category I	11.27	30.99	57.75
Category II	14.81	36.11	49.07
Category III	27.59	31.03	41.38
By aggregate			
Aggregate of all responses	16.81	33.61	49.58

that educational institutions could not provide the training because of the lack of efficiency and capability of the system. The "We can do it much better" or "We have to retrain them no matter how well educated they [the employees] are" were not uncommon statements to hear.

The tally of skills taught on the job by firms is compiled in List 6 in Appendix G. Those abilities listed most frequently were management, sales, office procedures, and public relations.

Question eight. Are there specific training courses that if taught by a vocational school or college would benefit your firm? Specify.

This question dealt specifically with skills which if taught by schools would be beneficial to employers. The more than 100 comments covering the employment spectrum are contained in List 7 of Appendix G. Some of these job skills might be taught in a week; others would take years. Those listed most frequently were management, public relations, auto mechanics, supervision, sales, secretarial, and bookkeeping. Interviews revealed that many of the skills related to the courses are needed by employees as they advance in the company, not when they are initially employed.

For the total sample, 65% felt there were courses that would benefit their firms. The analysis of responses by firm size and industry is shown in Table 10.

TABLE 10

Responses to Question 8: Are There Any Specific Training Courses That If Taught by a Vocational School or College Would Benefit Your Firm?

Classification	No opinion (percent)	"Yes" responses (percent)	"No" responses (percent)
By major industry			
Agriculture, Mining, and Construction	4.76	66.67	28.57
Manufacturing, soft	-----	92.00	8.00
Manufacturing, hard	6.67	66.67	26.67
Transportation, Communication, and Utilities	10.00	60.00	30.00
Wholesale and Retail trade	5.06	68.35	26.58
Finance	4.00	56.00	40.00
Services	18.18	48.48	33.33
Medical, Health, Education, and Legal	27.27	54.55	18.18
Government	-----	66.67	33.33
By firm size			
Category I	2.82	73.24	23.94
Category II	9.26	58.33	32.41
Category III	10.34	67.24	22.41
By aggregate			
Aggregate of all responses	7.56	65.13	27.31

Question nine. Identify the skills areas in your firm that are filled by the apprenticeship programs operated by labor unions.

Table 11 gives the breakdown, and figures listed indicate the high percent of non-union companies covered by the survey. Overall, 185 out of the 216 companies surveyed did not utilize people trained in union apprenticeship training programs.

Only the major industrial classification of Agriculture, Mining, and Construction showed a notable percent of union apprenticeship employees. Since agriculture and mining are not significant within the metropolitan area of El Paso itself and therefore were not sampled, the percent of response in this grouping was due to the impact of construction companies. This is evidenced in List 8, Appendix G, the skill areas operated by labor unions.

Presentation of Selected Data by SIC Category

Appendix E, Tables 15 through 23, provides the consolidation of the employment position analysis by SIC categories.

When analyzed by industry, only two categories showed a decline in employment during the 12 months preceding the study. The Agriculture-Mining-Construction category, which, for the sample, represented Construction only, did show a decline. It is assumed by the researcher that the indicated employee reduction was a result of collecting the data during the winter months, when

TABLE 11

Responses to Question 9: Identify the Skill Areas in Your Firm That Are Filled by Apprenticeship Programs Operated by Labor Unions

Classification	None responses (percent)
By major industry	
Agriculture, Mining, and Construction	47.62
Manufacturing, soft	92.00
Manufacturing, hard	86.67
Transportation, Communication, and Utilities	80.00
Wholesale and Retail trade	94.94
Finance	92.00
Services	87.88
Medical, Health, Education, and Legal	81.92
Government	100.00
By firm size	
Category I	83.10
Category II	89.81
Category III	86.21
By aggregate	
Aggregate of all responses	86.97

the construction industry is less active. The Health, Education, and Legal category also showed a reduction. The sample for this group was rather low. Hospitals, clinics, and related businesses were omitted from the survey sample because the health care needs of El Paso, including related manpower requirements, were a research project by Losh and Associates and the results of their manpower survey are in Appendix A.

All other industry groups indicated some increase in employees, the most active being Services, which had a 9% growth, and Manufacturing (hard), which increased about 7%.

The anticipated growth in employment was, for every category, higher than the growth reported during the preceding year. The most logical reason for this is that, while the preceding year's growth was calculated from the actual count of employees, the anticipated growth was speculation on the part of the employer.

Presentation of Selected Data by DOT Category

The following is a discussion of data in light of the ramifications as they relate to educational programs. These data by DOT category were extracted from information collected by this investigator on Form B of the questionnaire. Tables 24-33, Appendix F, furnish the actual numbers and percents for each DOT group. These tables are a consolidation of the computer printout sheets which listed all the individual responses to Form B of the questionnaire, according to DOT sequence. Appendix C, pages 91-154, of the Comprehensive Manpower Study: El Paso, Texas, a report issued by the Bureau of Business and Economic Research,

University of Texas, El Paso (University of Texas, 1973), contains these complete individual responses.[1]

DOT Group 001-099, Professional Occupations

Table 24, Appendix F, reports the analysis of employment positions in El Paso for the professional occupations. This table shows that, for the sample, 787 people left their positions and 990 were hired, an increase of 102 or about 2%. The anticipated increase, 99 new positions, was similar since it was also close to 2%.

The educational level of this group preferred by employers was quite high. According to the tabulations, about 90% of the employees needed more than a high school education and over 60% a 4-year college degree. This high educational level is often a prerequisite for obtaining a state license or certificate which may be necessary to legally practice that profession. For two-thirds of the positions, formal on-the-job training was preferred by the employer. Experience was essential for about 70% of the jobs. Promotional opportunities existed in over 80% of the positions.

During interviews, it was learned that many professionals, engineers for example, are promoted to positions which require a knowledge of labor relations, management, and economics, but their previous training did not prepare them for these additional responsibilities.

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[1] Comprehensive Manpower Study: El Paso, Texas is a report based on the manpower data gathered by the author of this dissertation. A copy of this complete manpower study is available from the Library at New Mexico State University.

DOT Group 100-199, Technical and Managerial Occupations

The technical positions listed in this group were very specialized fields such as photography, writers, artists, musicians, librarians, and interior decorators. The majority of the positions in this DOT category consisted mostly of managerial occupations, the decision-making group of office workers, which include managers, accountants, purchasing agents, and credit managers. This is a growing occupational area in El Paso. The survey figures show that growth during the past year was over 4% (162 positions), and anticipated growth over the next 12 months was about the same. (See Appendix F, Table 25.)

Employers indicated about 65% of the jobs should be held by people with more than a high school diploma. Tabulation of the sample, furthermore, revealed that for 28% of the positions employers preferred college graduates.

On-the-job training and experience were preferred for about 80% of the positions. Most jobs had promotional opportunities (86%), and of the 14% that did not, many were the senior positions in the department or firm.

DOT Group 200-299, Clerical and Sales Occupations

The survey sample accounted for 9,041 people engaged in clerical and sales occupations. This was over 25% of the 34,800 jobs analyzed in this study.

Table 26, Appendix F, is an analysis of the employment positions in this group. The turnover rate was approximately 25%,

and of that number, one-third were promoted and two-thirds left the firm.

The growth rate during the year preceding the study was only 1.4%, but the anticipated increase for the following year was over 8%, based on the employers' responses.

The educational levels preferred by employers for people in this occupational area were reported in Table 26 also. Fifty percent should have completed high school; over 30% needed vocational, technical, or some college courses. For only about 2% of the job titles listed did employers prefer a 4-year college degree.

On-the-job training was important to employers for about 60% of the positions, while 22% of the jobs could have been filled by people with no special training. Experience was required for 45% of the jobs, and from 80% of the positions, promotion was possible.

DOT Group 300-399, Service Occupations

Table 27, Appendix F, of this dissertation, reports the analysis of positions for service occupations. The sample identified 2,560 people in this group. Growth for the 12 months preceding the study was over 2% or 60 jobs. The anticipated growth for the current year was more than three times that figure, 7.5%. It is possible that the larger figure for anticipated growth was a result of the optimism of employers when expansion plans were considered.

The educational level for service occupations as reported by employers was lower than for the previous categories. When Appendix C of the Comprehensive Manpower Study (University of Texas, 1973) was scanned for this DOT classification, very few jobs were identified that needed more than a high school education. About 35% were in positions in which a high school education was desirable, and for only 7.5% of the job titles was more education preferred.

Of the employers indicating a preference, 55% of the positions needed on-the-job training, and 34% needed no special training. Experience was required for only about one-third of the jobs. Opportunities for promotion were available in two-thirds of the positions.

DOT Group 400-499, Farming, Fishery, and Forestry Occupations

The utilization of people with careers in farming, fishery, and forestry is small in El Paso. The sample yielded only 10 job titles and 136 positions. In this small sample no jobs were listed which required more than a high school education.

DOT Group 500-599, Processing Occupations

Jobs categorized as the processing occupations were held by 1,232 people. The job analysis, Table 29, Appendix F, condenses the statistics. About 2.5% growth occurred in the year preceding the survey. Employers optimistically expected to increase employee numbers in this field over 11% in the next year. As mentioned previously, the preferred educational level was high

school or less. Only 13% of the job titles were in slots requiring more than high school. Although vocational and technical training were cited, not one employer indicated college level education.

On-the-job training was preferred for two-thirds of these jobs. Only about 40% required prior experience for employment. As usual, promotion was possible.

DOT Group 600-699, Machine Trades Occupations

Table 30, Appendix F, is the analysis of employment positions for the machine trades. The number of people employed in this field increased by 37 during the 12 months preceding the study, representing a growth rate of about 3%. The anticipated growth rate was 4%. For 30% of the positions, employers preferred vocational or technical school training. Two-thirds of the positions needed on-the-job training and experience. Most jobs offered promotional opportunities.

Machinists, printing press operators, and mechanics of industrial equipment, cars and trucks are all skills listed in this occupational category.

DOT Group 700-799, Bench Work Occupations

Of the 4,578 employees accounted for in the bench work occupations, about 4,000 worked in the apparel industry. The remainder were employed in the manufacture and repair of electronic equipment and furniture manufacturing. By reading through Appendix C of the Comprehensive Manpower Study (University of Texas, 1973),

it is obvious that in this category the majority (about 3,000) were sewing machine operators who were trained on the job.

The transition figures for this occupational group differed from the other categories. The turnover rate was about 25%. Only 10% were promoted. The growth rate according to the survey was about 2%. The anticipated growth of 21.67% reflected the fact that two large employers in the apparel industry plan to expand their factories. This accounts for 800 sewing machine operators alone. Were that not the case, growth anticipated would have remained constant.

The educational level preferred by employers is shown in Table 31, Appendix F. About 40% of the jobs were in either the less than high school graduate or no preference category. Twenty-three percent should have had a high school attainment level. In general, advanced training requirements were covered by vocational, technical, or on-the-job training programs. The vocational and technical training was preferred by employers for those people considering the electronics industry.

Experience was required for two-thirds of the jobs. Promotional opportunities were available in 67% of the job titles, as reported in Table 31.

DOT Group 800-899, Structural Work Occupations

Plumbers, carpenters, painters, electricians, sheet metal workers, welders, and laborers all were reported in the structural work occupations. (See Table 32 in Appendix F.)

The survey accounted for about 2,400 people in this category. This was the only occupational group which showed a decline in number of employees, about 4%. The data were collected during the winter months, and this is not the peak season for construction work. That might offer a possible explanation for the decline.

About 15% of the workers in this category needed training in vocational, technical skills. Apprenticeship training and on-the-job training were important in this area. Union apprenticeship programs do provide the certification necessary for some of these tradesmen to work on construction sites.

DOT Group 900-999, Miscellaneous Occupations

The miscellaneous occupations contained only two job titles, truck drivers and warehouse workers, which appeared frequently in the Form B responses. (See Appendix F, Table 33.) All other entries were a random selection of positions. Both truck drivers and warehouse employees learn primarily on the job.

Since this group is miscellaneous, the aggregate figures have no significance in planning educational programs.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Included in this chapter is a summary of the study. The findings and conclusions, observations and comments, and recommendations based on the results of the survey are cited as they pertain to educational programs.

Summary

Each community has unique labor market characteristics. The needs of each business or industry differ also with respect to the education and training of employees. Therefore, the El Paso Community College, the University of Texas at El Paso, and interested community organizations sponsored a manpower needs assessment of El Paso, Texas.

The objectives of the study were to obtain information from employers in regard to the numbers of employees, education and training level preferred, and related employee information. The identification of specific kinds of skills needed for the operations of business and industry in El Paso was also a purpose. This study provided the firms sampled a direct opportunity to give their input into the planning of educational programs.

The sample consisted of 100% of the firms employing 100 or more employees, 25% of the firms employing between 15 and 99 employees, and 5% of the firms employing 14 or fewer people.

By mail 146 questionnaires were returned. Personal interviews resulted in another 70 replies, for a total of 216 responses. The responses accounted for 34,862 jobs or about 25% of the employees in El Paso.

To facilitate analysis of more than 1,900 job titles listed by the employers on Form B of the survey, the job titles and firms were coded. The Standard Industrial Classification codes were assigned the businesses, and the Dictionary of Occupational Titles codes were assigned the job titles. The data were then sorted by computer according to DOT sequence, SIC sequence, and firm size as sampled.

Form B of the questionnaire was designed to elicit from the employer the job title, number in that position, turnover information, anticipated growth, education and training preferred, experience required, and promotional opportunities for the position. The following figures are the results of Form B analysis considered in the aggregate.

Nineteen percent or 6,824 people left their jobs. Of those, 2,433 (one-third) were promoted, and 4,391 (two-thirds) left the firm. Hired into specific jobs were 7,234 (21%). Promoted to the position were 2,482 (34%), and 4,752 (66%) were brought in from outside the firm. Employers who were sampled reported they expected to hire an additional 2,807 people next year, an anticipated growth of 8%.

The following educational levels for employees were preferred by the employers indicating a preference: less than high school, 14%; high school, 32%; posthigh school vocational education, 10%; 2-year posthigh school technical graduate, 6%; 1 to 3 years of college, 12%; 4-year college graduate, 12%; and no preference, 13%. Training preferences were: on-the-job, 66%; apprenticeship training, 9%; no special training, 19%; and other, 6%. Experience was shown as required for 58% of the positions, and promotional opportunities existed in 70% of the jobs.

Form C of the questionnaire consisted of nine questions related to obtaining and training employees. Eight of the questions asked employers to list any problem areas of employment or to suggest skills needed. These responses were tabulated by industries and again by firm size. All open responses were recorded and listed in groups by question.

Overall, 70% of the firms responded "yes" to question one asking if qualified employees were difficult to find. More than 200 job titles were listed by employers. Those jobs appearing most frequently were accounting, mechanics, cashiers, welders, management, sales, electricians, clerks, truck drivers, and secretaries.

In response to question two, 23% of the firms indicated they must seek some employees from outside the El Paso community. Employers answering this question listed 54 job titles involved. The majority of the jobs listed require special training,

extensive experience, or both. For example, a few of the positions were engineers, musicians, printers, social workers, and managers.

Employers' priorities for sources in seeking employees as ranked on question three appeared in this order: direct application, present staff, public employment office, private employment agencies, colleges and universities, other (specified), secondary schools, labor unions, and proprietary schools. Advertising in the media was the response listed most often under "other."

Regarding question four, about two-thirds of the employers stated they would like to see prospective employees better trained in some skill or profession. Over 100 job titles were cited in relation to this inquiry. The positions noted with the most frequency were auto mechanics, cashiers, sales, secretarial, typing, and electricians.

Most responses to question five appeared on previous lists. About 85 entries were recorded in relation to skills or professions which would better serve firms by additional training programs in formal institutions. Human relations and dealing with the public were areas of skills mentioned by several employers.

Eighty-four percent of the firms reported on question six they do train personnel for the purpose of promoting or advancing them. Sales, management, dealing with people, office procedure, electricians, cashiers, mechanics, and welding were most frequently cited by employers as areas in which they conduct training for employees.

However, in response to question seven, about 50% of the employers did not believe it would be beneficial to their firms if this training were done by a formal institution. Interviews revealed that much of the training was done to acquaint the employee with the individual procedures and equipment of the firm.

About two-thirds of the respondents checked "yes" for question eight inquiring if there were specific training courses that, if taught by a vocational school or college, would benefit their firms. Some of the more than 100 courses suggested were management, mathematics, public relations, sales, secretarial, welding, accounting, mechanics, and blueprint reading.

Of the employers answering question nine, 87% reported they do not have positions filled by the apprenticeship programs of labor unions. The remainder listed jobs in building trades and rail transportation.

Findings and Conclusions

Based on the analysis of the data as presented in the preceding chapter, the following conclusions are specified.

Employment in El Paso increased during the 12 months preceding the study, and the projections indicated that trend would continue.

Employers preferred that about 40% of the positions be occupied by people with education and training above high school.

Only 19% of the jobs were listed by employers as requiring no special training. Experience was cited as important for

acquiring about 60% of the jobs. Most jobs as indicated on the questionnaire had promotional possibilities.

The majority of the employers stated qualified employees are difficult to find. It was concluded, based on information obtained from the interviews, that the key word was "qualified." Persons selected to fill a specified position may have received prior training and even have had experience, but their performance on the job was often less than the employer expected.

Many skills listed as difficult to obtain are already covered by existing training programs in the El Paso community. However, these programs are evidently not in line with what employers expect in terms of on-the-job performance. Communication between the employers and educators seemed to be lacking.

The lack of ability to perform adequately in managerial, supervisory, and sales occupations is often a direct result of employee deficiencies in human relations skills.

A problem commonly occurs when a person in a nonsupervisory position is promoted to a supervisory position. These on-the-job promotions frequently create for the employee a need for training completely unrelated to his original position with the company. Such advancements often involve responsibilities for labor relations, management, and economics.

The opportunity to receive training at times in accord with their work schedule is needed by people presently employed full time. Frequently these people come from a very wide variety of educational levels and backgrounds.

Considering the unique geographic location of El Paso, a working knowledge of both Spanish and English is advantageous especially in some sales and supervisory positions.

The impact of labor unions is minimal, and while some of the construction trades are influenced by union apprenticeship programs, there are many employers in this industry who do not require union membership for employment in these trades.

People knowledgeable in accounting, management, supervision, and clerical skills are a universal need of almost every business. Obtaining well-trained people possessing these skills was a problem for many firms.

The apparel and leather goods industries employ more than 16,000 people. At the present time most employees must learn the skills required by these industries, such as the operation and maintenance of sewing machines, on the job.

The advanced industrial trades taught by vocational and technical schools may need evaluation. For example, mechanics were reported as needing better training and additional training.

Observations and Comments

In this project the employers were asked to determine the educational level they preferred for employees in specific jobs. These results were reported without raising an important question: Do employees really need the education to perform on the job? In a recent book, Education and Jobs: The Great Training Robbery, by Berg and Gorelick (1971), this very issue was discussed at length.

Berg and Gorelick's publication contained evidence that many of the established educational prerequisites to employment are not only questionable, but detrimental to satisfactory job performance. This issue should be investigated further and must be considered by program planners in education.

The investigator contacted 50 employers for data collection and met with other people familiar with manpower problems during the development of the study. Since much of the information was collected by interviews with personnel directors, business managers or firm owners, it was noted that the responses relating to the quality of the employees and whether they were in definite need of more or bettter training seemed to be affected by the mood of the respondent. It was observed that employers with a pessimistic outlook in general expressed a negative attitude toward both their employees and educational institutions. Conversely, satisfaction with employee performance and an eagerness to solve problems which did exist were displayed by employers with a more cordial personality.

Another related, pertinent issue may be raised. Can one man in a firm, especially a large one, know the manpower needs of all the departments? Would not, in some cases, the line supervisors have a better understanding of the education and training requirements for a particular job? This possibility is certainly worth considering when formulating course content.

The final observation relates to reimbursement for services rendered. Our society has generally sold young people on the notion that for a given field the better educated you are, the more you will be paid. It was noted by the researcher that at least some employers in El Paso do not subscribe to that belief. In fact, there were some instances where employers indicated salaries would be at the legal minimum wage for a given position no matter how much the employee improved or how much training he had. The availability of a manpower supply from Mexico compounds this problem. Because of the economic disparity between the United States and Mexico, a Mexican can afford to work for a substantially lower wage than a worker living in the United States. Therefore, is it logical for a person to enroll in a training program hoping to raise his economic status when that program will net him no more than if he had not gone beyond the eighth grade? In all fairness, however, it must be pointed out that there are employers in El Paso who do pay relatively high wages to all workers.

While these comments and observations may be considered as applying only to El Paso, Texas, there is a very good possibility that similar perceptions may be noted in other geographic locations.

Recommendations

Based on the conclusions compiled as a result of this study, the following recommendations are presented.

The establishment of more and better communication is necessary between educational institutions and employers.

Evaluation procedures of all course offerings which relate to job performance skills should consider the input of firms utilizing those skills.

Input for course development should be obtained from representatives of firms utilizing those skills to be covered in the course.

Human relations skills, the ability to deal effectively with people, need to be stressed. This is especially true in programs which train individuals for careers where such skills are a prerequisite to success, for example, sales, management, and supervision.

Students need to be informed of the possible responsibilities that come with promotion in the career they have chosen. Whenever feasible, training programs should include on-the-job training opportunities. This will provide the person with experience, valuable for learning and often necessary for job placement.

Promotion or other career changes often make it desirable for people presently employed to obtain additional skills. Therefore, course offerings at times convenient to the "nine to five" worker are in demand. Skills in management, supervision, business economics, and labor relations are all curriculum areas which need this consideration.

Since students for such classes may come from different educational levels and backgrounds, the courses should take into account these differences. In some situations, courses could be developed to accommodate people from similar industries.

Curriculum planners should consider the dominance of the Spanish language unique to some firms in El Paso. Supervisors frequently need to be fluent in Spanish as well as English.

The following training programs should be evaluated and specific information gathered from employers to determine possible changes in course content: mechanics, sales, secretarial skills, and electricians.

To fill the shortage reported by employers, training institutions need to encourage student consideration of the following career areas: accountants, mechanics, cashiers, management, sales, welders, electricians, and secretaries.

Consideration should be given to the development of courses to train people in the skills needed by the apparel and leather goods industry. For example, courses might cover the maintenance and operation of sewing machines.

Manpower needs data for the city of El Paso should be updated on a yearly basis in order to keep abreast of the current trends.

Chapter 6

SURVEY PROCEDURE AND CURRICULUM PLANNING

One of the recommendations in Chapter 5 was to update the manpower needs data on a yearly basis. Included in this chapter, therefore, are a model for a manpower needs assessment and a discussion of possible methods of conducting a survey of this type. A model for curriculum decisions based on the kind of data gathered by this assessment and some of the basic steps in curriculum planning are also presented.

Manpower Needs Assessment: The Process

To undertake a manpower needs assessment of a large metropolitan community or a vast geographic area requires a well-organized and coordinated approach. A graphic illustration of the steps involved is shown in Figure 1.

The initial phase of such an undertaking is determining the scope of the research problem. All other decisions in the research procedure are determined by the nature of the unanswered questions.

Some solutions are available in precollected form such as census data or statistics published by employment agencies. If such secondary sources do not offer satisfactory information, primary sources will have to be utilized. In this case the next step would then be the identification of the population to be

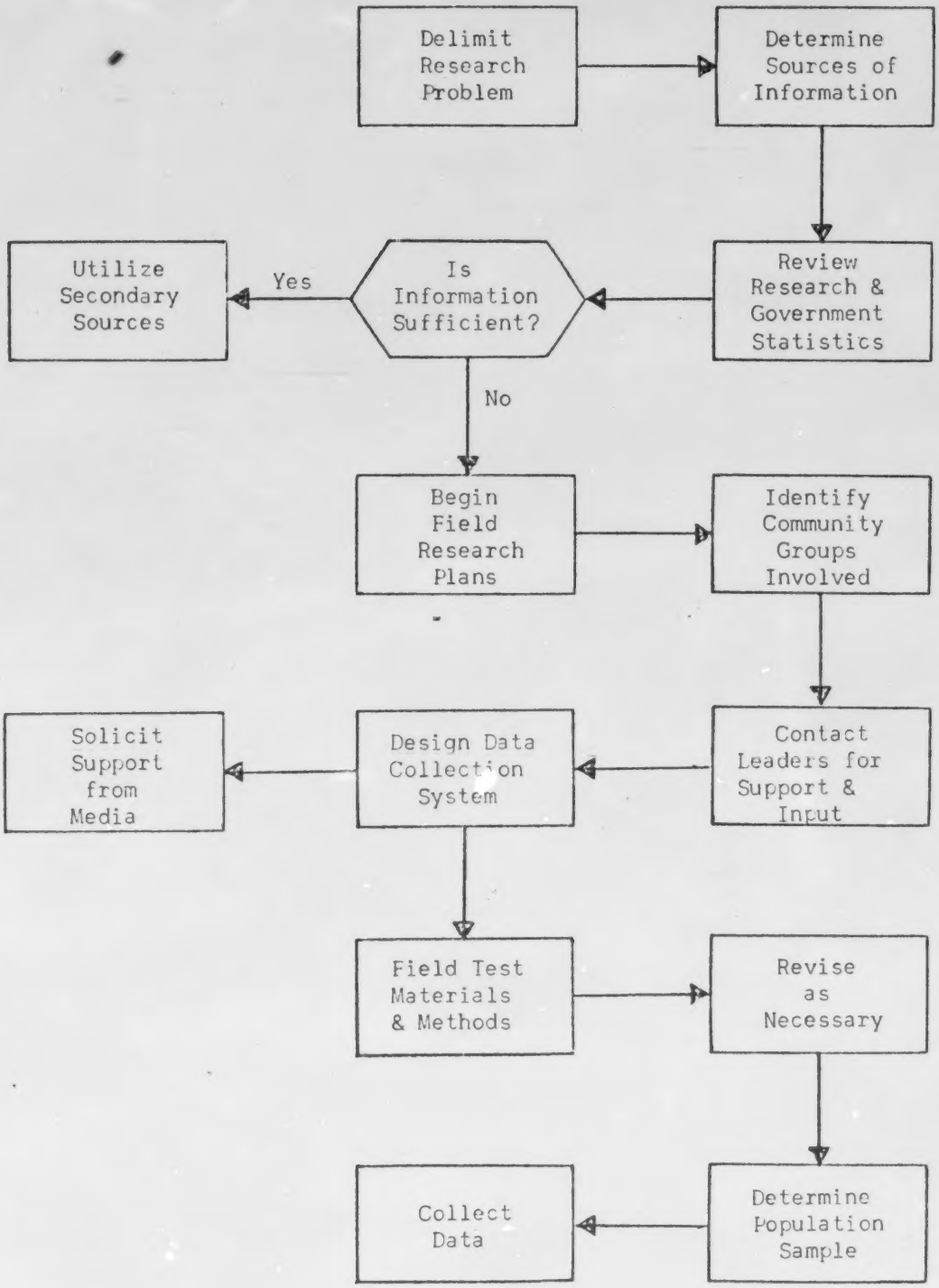

FIG. 1. Model for manpower needs assessment.

surveyed. A current register of the businesses and industries is generally available from community establishments such as the Chamber of Commerce.

Perhaps one of the most important steps in the initial part of the study is the identification of influentials, people in the area who are recognized as community leaders. The endorsement of these people can greatly increase the support and response to the survey. As Lionberger (1960) pointed out, when a project is accepted by community leaders, most others accept it also. It is important that these legitimizers are involved in the planning stages of the study since this involvement gives each a stake in the success or failure of the operation. The most difficult part of this process is that no single faction commands the respect of the whole business community; therefore, it is necessary to identify and seek the support of what are, in some cases, divergent groups. One of the major challenges of this type of study is to unite these groups for a common goal.

The target of the survey is also important. General information in terms of skills and numbers is frequently available from the firm manager, owner, or personnel director, depending on the size of the firm. If very specific detail regarding skills for a given job is needed, consulting line supervisors rather than the firm manager or personnel director may be more expedient.

The design of the instrument should be such that it fulfills the needs and objectives of the study. The longer, more complex,

and time-consuming the instrument is, the smaller the response will be. Lengthy and tedious personal interviews may alienate employers and are expensive in terms of research man-hours.

For ease in transferring the information to computer cards, there is a temptation to reject open-end responses to questions. Although coding these open responses does present problems, the respondent is free to express his own opinion without being prompted by a predetermined check list type of inquiry. However, questions that lend themselves to a "yes" or "no" answer or a check list response without leading the respondent should, for simplicity of tabulation, be put in that form.

After the method of data collection has been selected and the related materials developed, it is wise to field test the system. A small sample of the actual population, eight or 10, for example, may be selected and asked for their response to the materials or the interview. Thus problems related to the data-gathering system can be identified and the necessary revisions made.

During the time prior to the beginning of the collection of the data, an effort should be made to obtain the full cooperation of all phases of the media for the purpose of dispensing information relating to this project and urging support. Coverage could include such items as sponsoring organizations, need for the project, objectives, and statements of support by community leaders. A detailed description of the methods by which the data will be

collected may be worthwhile. A well-planned system for the propaganda dispersement can greatly increase the response return and the quality of the information received.

The method of data collection depends on the complexity of the information desired and the availability of manpower and time. Some information is best gathered by personal interview. Short questionnaires can be mailed to the survey population with an expectation of reasonable percent returned.

If the mail-out method of collection is selected, it is necessary to determine what percent of response is desirable in order to obtain a valid sample return. A follow-up to the original questionnaire is sometimes necessary to increase the number of responses to a reliable figure. Three methods of contacting firms which can be used to increase participation are telephone calls, personal contact, and letter.

Telephone contact was used by this writer because this method was less expensive than personal contact and more expedient than a letter. Since a telephone conversation is two-way communication while a letter is only one-way communication, the respondent was able to make the caller aware of such information as whether another form of the questionnaire was needed or whether the firm's internal regulation prohibited response to questionnaires other than required government forms. Information gathered during these telephone conversations had indirect value in terms of comments made about the questionnaire and the related topic.

Data for this survey were also gathered by personal interview. All firms selected for interview were contacted initially by telephone for appointments. It was found that Category I and Category II firms usually have personnel departments which keep very complete records of company employment and handle the release of this information. These firms are public-relations conscious and will consent to help community organizations when possible, especially if there is a chance it may help them also at some future time.

Category III firms presented a very different problem. As with the other size firms, initial contact was made by telephone. However, there was much more difficulty in establishing the rapport necessary to set up the personal interviews. Often expressed was the feeling that their input into the survey was insignificant since their employee numbers were small. Seldom were records related to turnover and hiring information kept. Frequently the request to be interviewed was turned down on the basis that the people were too busy running the business to be bothered.

An alternate approach to gathering the data from small firms was tried. This writer would contact the small businessman initially in person. The manager or firm owner was given a terse outline of the research objectives and asked if he would be willing to contribute enough time to give this information. More than 50% of the employers contacted in this manner responded favorably and took the time for the interview.

Each geographic area will have differences which the researcher will have to identify. It is even possible that some changes in the approach to gathering the data will have to be made after the initial steps have begun. A program for formative evaluation may greatly improve the quality and percent of response.

Data Utilization for Curriculum Development

Steps for curriculum planning are presented in many acceptable variations. Johnson (1964), for example, listed 71 "Steps in Getting Started," a check list in the field of curriculum and instruction. The following model for curriculum decisions, Figure 2, uses several steps similar to those listed by Johnson.

The primary intent of the model is to illustrate the use of data collected by this manpower survey in the curriculum planning process. Decisions for curriculum evaluation or initial development of course offerings must be based on current information. Blocker et al. (1965) discussed the vital role of industry in such a process. Job availability and curriculum content are two areas of planning where information gathered directly from employers can assist program development. Additional steps in the process not directly related to the manpower study are added to complete the model.

The selection of a specific occupational area for analysis and evaluation can evolve in several ways. Students may ask for specific classes, faculty members can offer suggestions, a segment of the manpower study itself may identify possible areas for

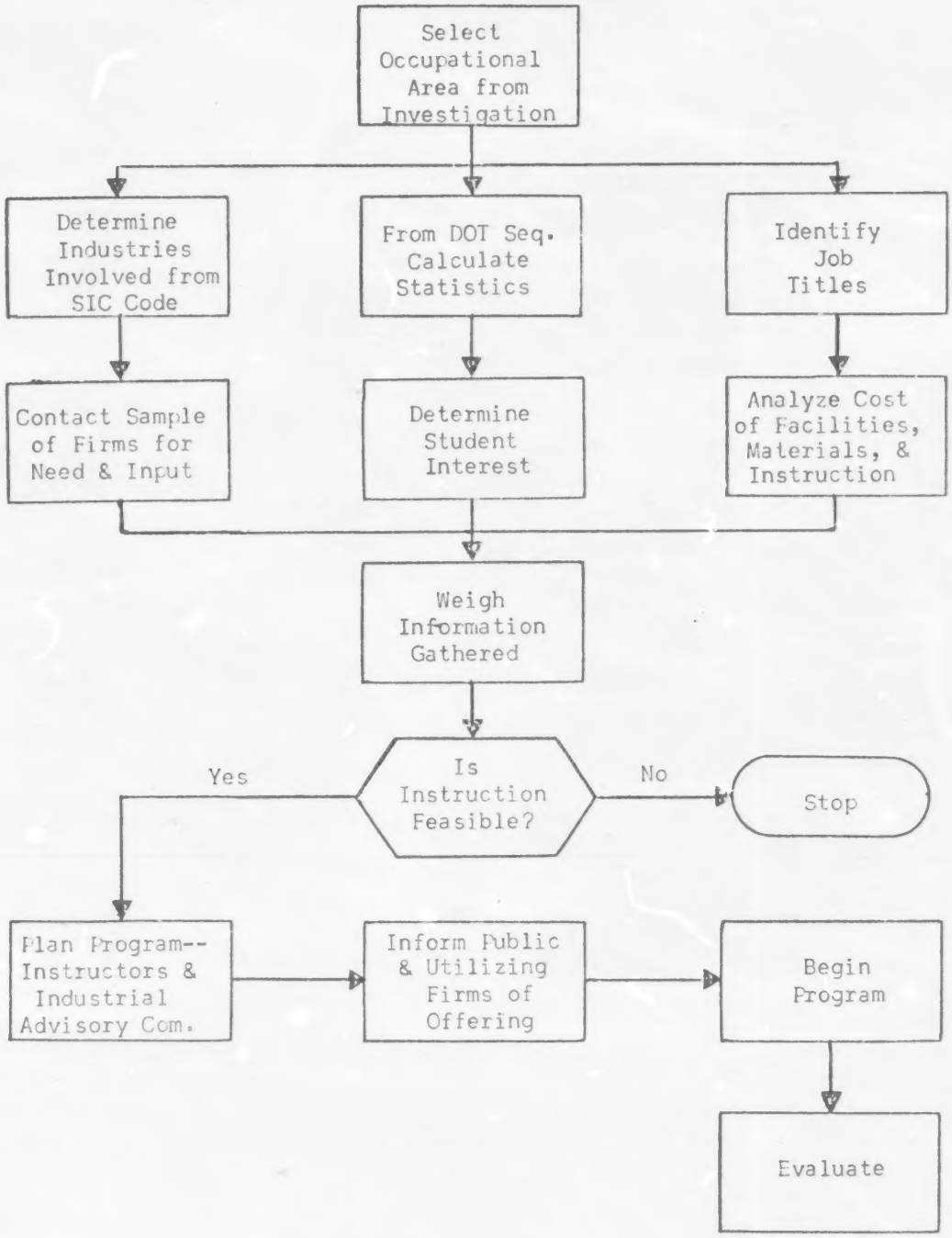

FIG. 2. Model for curriculum decision.

investigation. For instance, employers' responses to the questions on Form B of the questionnaire could offer a starting point for the identification of needed programs for business and industry.

Once the occupation has been identified, the next step, as illustrated in Figure 2, would be the analysis of data related to the occupation. Appendix C of the Comprehensive Manpower Study: El Paso, Texas, contains the computer print-out sheets of the data gathered by this needs assessment, according to DOT sequence, pages 91-155. The columnar codes are given on page 91, and a detailed explanation for analysis purposes is discussed in Chapter 4 of this dissertation under the section titled "Job Category Analysis--Form B."

Through examination of Appendix C of the above-mentioned document, the following information can be gathered within the limits of the sample. The job title will identify the occupation in the majority of cases. The total number of positions, the turnover statistics, and estimates of anticipated new positions by employers all may be calculated from Columns C through F. Column G_1 presents the preference of educational attainment as named by the employers. The educational level selected for most jobs varies, but by scanning the column completely for a specific job an indication will be evident. This indicator, along with what can be assumed from the job title, designates the educational level most often required for the given position. Column G_2 lists the

employers' choice for the type of training wanted. If special training is desired, the on-the-job type response was usually checked by employers. A few union-controlled jobs have apprenticeship training programs in which time spent on the job is a prerequisite for recognized mastery of the skill. Some professions have the same kind of requirements for state licenses or certification.

The question which must be answered is, "Does this job have educational and training requirements which can be met by a program in the institution doing the analysis?" If not, the investigation may cease at this point. Generally more information is needed for a decision.

The SIC code of the job titles being perused identifies the type of industry utilizing a particular job skill. There may be several types of employers for each skill. Then by scanning a complete register of businesses in the community for these industries and noting their sizes, the total potential utilization of a given job can be estimated. Afterwards, a sample of these firms can be contacted and by personal interview the need of the skill in question verified and information pertinent to specific curriculum content obtained.

With sufficient information to determine curriculum content, the next critical decision point is, "Can the institution provide the facilities, instruction, and equipment to offer a worthwhile program?" Without the resources, any further investigation is fruitless.

The final question, but of the utmost importance, is, "Will students be interested in such a program?" As stated by Wagley (1964), the salaries paid to those who complete the program may not justify the training program. Students do consider such factors as salaries, working conditions, and promotional possibilities. This is especially true of jobs where extensive classroom training is a prerequisite to employment.

The education and training requirements, number of potential jobs, resource requirements, and student interest must be brought into a proper balance that is functional and economically feasible. To be more concise, if the decision-makers of a particular institution weigh all of these factors as they relate to a specific program and consider them in the light of the institutional scope, the chances of that program's success are increased greatly.

Once the decision to institute a new program or reorganize an existing program has been made, the course content must be determined. Instructors knowledgeable in the given field and an advisory council from industries where the specific skills are utilized can effectively complete this process.

A system of informing potential students and employers of course offerings should be initiated. Firms will consider recruiting replacements from the institution if made aware of existing programs teaching the particular skills needed. Career counselors, employment agencies, and the news media are effective avenues for dissemination of information to reach all segments of the student and employer population.

After the program is in operation, a continuous process of evaluation should begin if it is to keep pace with the changes occurring in the field.

In Retrospect

The product and the process--each has a value to the educational direction institutions may take. The product is the information which may be drawn from the data. Counselors, curriculum writers, educational planners, students, and teachers may each use the information in a slightly different way. Time will erode the value of the product to the point where its only worth is historical.

The process, the actual human involvement in gathering the data, also has a value. The formal and informal conferences, the interviews, and the exchanges of ideas all lead to a mutual understanding of the problems with which each segment is faced. The establishment of a closer bond of communication between education and business will ultimately benefit both. The process, like the product, loses its significance in time. The flow of information between these two facets of society must be continuous or a gap will eventually separate them.

A needs assessment can be the beginning of bridging the communication gap between business and education. This manpower needs assessment was not an end in itself, but a beginning.

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APPENDIX A

SUMMARY OF THE NORMAN LOSH HEALTH MANPOWER STUDY

SUMMARY OF MANPOWER SURVEY

	As of 12/1/72		Total	Anticipated Need 1975
R.N. Doctorate	1			
R.N. Masters	16			
R.N. Diploma	609			
R.N. Baccalaureate	41	=	702	863
R.N. Associate	1			
Graduate Nurse - Unlicensed	34			
LVN	432			553
O.R. Nurse (R.N.)	56			69
(LVN)	7			9
Nurse Anesthetist (RNA)	22			28
Anesthesia Technician	6			7
O.R. Technician	35			43
Med. Lab. Technologist - ASCP	57			
MCT	23	=	148	175
Med. Lab. Technician - Other	67			
Radiology Technologist - ARRT	70			
Other	5	=	75	87
Inhalation Therapist - ARIT	9			
Other	56	=	65	91
Pharmacist - Registered	29			
Technician	20	=	49	59
Physical Therapist - APTA/ARPT	10			
Asst. or Aide	14	=	24	32
Occupational Therapist - AOTA	2			
Asst. or Aide	4	=	6	9

[1]Reprinted from "Report on the Community Hospital and Health Needs for El Paso County," by N. L. Losh and Associates (1973). Permission granted via telephone conversation, August 30, 1973.

Summary of Manpower Survey (Continued)

	As of 12/1/72		Total	Anticipated Need 1975
Social Worker (Master's) Case Worker (Bachelor's)	7 4	=	11	16
Mental Health Worker	40			47
Dietitian - ADA Other	7 10	=	17	22
Food Service Manager	18			21
Food Service Worker	295			336
Medical Secretary	305			384
Medical Record Librarian - MRA Other	3 37	=	40	52
Medical Record Technician	27			34
Dental Assistants - AADA	128			192
Office Assistants (Medical & Dental)	304			353
Dental Lab Technician	6			8
Dental Hygienist	18			27
EEG Technician	20			23
EKG Technician	9			11
Speech Therapist	3			20
Bacteriologist	1			3
Sanitarian	3			5
Environmental Health Specialist	1			2
Sanitation Inspector	2			4

APPENDIX B

QUESTIONNAIRE AND SUPPLEMENTARY MATERIALS FOR MAIL-OUT

FORM A

83

National Alliance of Businessmen

• P. O. BOX 682 • EL PASO, TEXAS 79944

The National Alliance of Businessmen, in cooperation with the Chamber of Commerce, the Community College, and the University of Texas at El Paso, is sponsoring a comprehensive manpower study to attempt to develop sound employer-oriented educational and training programs.

We need your help. Our goal is to develop the basic information for development of curriculum and career counseling. Educational and training institutions could then use this information to produce graduates who would be able to perform adequately with little additional training.

To insure accuracy and validity a substantial number of completed questionnaires is required. Your cooperation is essential.

Would you please have the enclosed form completed according to the attached instructions and returned within ten days if possible. A self addressed envelope is provided. Should you have any questions please contact William Niland, National Alliance of Businessmen, 533-5434. A randomly selected group of employers will be contacted by telephone in order to schedule a short related interview.

Names of participating firms will not be used and replies will not be divulged except as an aggregate compilation. We will, of course, be pleased to send you a copy of the finished study.

Thank you very much for your cooperation and assistance.

Sincerely,

Ted F. Karam

Ted F. Karam
Metro Chairman

TFK:eg

COMPREHENSIVE MANPOWER STUDY
EL PASO, TEXAS

Firm Name: _____

Address: _____

_____

IN THE EVENT THAT INFORMATION IS NOT READILY AVAILABLE, YOUR JUDGEMENTS AND ESTIMATES WILL SUFFICE.

Information reported on this form is strictly confidential and will not be revealed to any unauthorized persons nor published in such a manner that data relating to individual companies can be identified.

_____
Person Preparing Report

_____
Title

_____
Telephone Number

FORM B

A	B	C	D		E		F	G										H		I	
DOT CODE (Leave Blank)	List Job Titles in Your Firm (Generalize into a single category those with similar entrance requirements.)	Number of Positions	Number Who Left This Position in Last 12 Months		Number Brought Into This Position in Past 12 Months		New Positions Anticipated in This Category in Next 12 Months	Education and Training Preferred-Check One Column Under Education and One Under Training-Showing Minimum Requirements for Each Occupation (See List Below)										Experience Absolutely Required Prior to Initial Employment		Promotional Possibilities to Higher Level Jobs	
			Promoted	Left Firm	From Within	From Outside		Education							Training						
								1	2	3	4	5	6	7	A	B	C	D	Yes	No	Yes	No

INSTRUCTIONS DESIGNED TO SAVE YOU TIME

Column B - Please list all separate positions in your firm. Group positions of similar qualifications and training.
Column C - Record the number in each position.
Column D - List the number of all employees who have left this position during the past 12 months.
Column E - List the number of employees who have been either hired or promoted to this position.
Column F - Record the number of new positions you expect to add in the next 12 months, if any.
Column G - Indicate both the minimum educational and minimum training requirements for each occupation. Exclude informal on-the-job training and orientation.
Column H - Indicate if experience is necessary prior to initial employment.
Column I - Answer "yes" if employees in this occupation are normally promoted to higher level jobs within the firm.

EDUCATION
1. Less Than High School Graduate
2. High School Graduate
3. Some Post-High Vocational Education
4. Two-Year Post-High Technical Graduate or Jr. College
5. Some College (1-3 Years)
6. College Graduate (4 Years)
7. No Preference

TRAINING
A. Formal On-The-Job Training (Job Related)
B. Apprenticeship Training (Indentured)
C. No Special Training Required
D. Other (Specify in Comments Section)

Please Use Reverse Side For Comments And Suggestions

A	B	C	D		E		F	G											H		I	
DOT CODE (Leave Blank)	List Job Titles in Your Firm (Generalize into a single category those with similar entrance requirements.)	Number of Positions	Number Who Left This Position in Last 12 Months		Number Brought Into This Position in Past 12 Months		New Positions Anticipated in This Category in Next 12 Months	Education and Training Preferred-Check One Column Under Education and One Under Training Showing Minimum Requirements for Each Occupation (See List Below)											Experience Absolutely Required Prior to Initial Employment		Promotional Possibilities to Higher Level Jobs	
								Education							Training							
			Promoted	Left Firm	From Within	From Outside		1	2	3	4	5	6	7	A	1	2	3	Yes	No	Yes	No

FORM C

COMPREHENSIVE MANPOWER STUDY
El Paso, Texas

The following questions relate to problems involving employees. If there isn't sufficient room for an answer, please use the reverse side of the page. IN THE EVENT YOU FEEL THAT ANSWERING A PARTICULAR QUESTION MAY JEOPARDIZE YOU OR YOUR FIRM IN ANY WAY, FEEL FREE TO LEAVE THE QUESTION UNANSWERED.

1. Are qualified employees difficult to find?

☐ Yes (If yes, list skills and professions below.) ☐ No

_____
_____
_____

2. Does your firm utilize a skill or profession for which you must seek employees from outside the El Paso community?

☐ Yes (If yes, list skill or profession and how many positions are involved.) ☐ No

_____
_____

3. From what sources do you obtain employees who require prior training?

☐ a. Present staff
☐ b. Private agency
☐ c. Secondary schools
☐ d. Proprietary schools
☐ e. Colleges and universities
☐ f. Public employment office
☐ g. Direct application
☐ h. Labor union
☐ i. Other (Indicate sources.)

_____
_____

4. Would you like to see prospective employees better trained in any skill or profession?

☐ Yes (If yes, list area below and the number needed each year.) ☐ No

_____
_____
_____

5. In what skill or profession would your firm be better served by additional training programs in formal institutions?

_____
_____
_____

6. Do you train personnel presently employed with your firm for the purpose of promoting or advancing them?

☐ Yes (If yes, list skills involved.) ☐ No

_____
_____
_____

7. If your answer to question 6 was yes, would it be beneficial to your firm if this training were done by a formal institution?

☐ Yes ☐ No

8. Are there specific training courses that if taught by a vocational school or college would benefit your firm?

☐ Yes (Specify) ☐ No

_____
_____
_____

9. Identify the skill areas in your firm that are filled by the apprenticeship programs operated by labor unions.

_____ ☐ None
_____
_____

APPENDIX C

INTERVIEW INSTRUCTIONS AND MATERIALS

GENERAL INSTRUCTIONS[1]

1. Ask only one question at a time.
2. Repeat a question if necessary.
3. Try to make sure that the subject understands the question.
4. Listen carefully to the subject's answers.
5. Observe the subject's facial expressions, gestures, and tone of voice.
6. Allow the subject sufficient time to answer the question, but do not let the interview drag.
7. Avoid suggesting answers to the questions.
8. Do not show signs of surprise, shock, anger, or other emotions if unexpected responses are given.
9. Maintain a neutral attitude with respect to controversial issues during the interview.
10. Take note of answers that seem to be vague, ambiguous, or evasive.
11. In the unstructured interview, ask additional questions to follow up clues or to obtain additional information.
12. Use tact and skill in getting the subject back to an area of inquiry when he has strayed too far from the original question.

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[1]These 12 steps were the contents of a handout for a research class, Survey Sampling EA 588, taught Fall 1972 at New Mexico State University.

ORAL INSTRUCTIONS

The following must be conveyed to the employer prior to beginning the interview. It is not necessary to present it word for word; therefore, do not read it unless you must to get the points across.

THIS SURVEY IS SPONSORED BY THE NATIONAL ALLIANCE OF BUSINESSMEN, UTEP, THE EL PASO COMMUNITY COLLEGE, AND THE CITY MANPOWER PLANNING OFFICE.

THE PURPOSE OF THIS INTERVIEW IS TO OBTAIN INFORMATION FROM YOU WHICH WILL SERVE AS INPUT FOR TRAINING AND EDUCATIONAL PROGRAMS HERE IN EL PASO.

THE NEEDS AND OPINIONS OF EMPLOYERS AS RELATED TO MANPOWER ARE IMPORTANT IN THE DEVELOPMENT OF EDUCATIONAL PROGRAMS. I KNOW MANY EMPLOYERS WOULD LIKE TO SEE MORE REALISTIC TRAINING PROGRAMS IN SOME AREAS.

THE FOLLOWING QUESTIONS RELATE TO EMPLOYEES. IF YOU CANNOT ANSWER A QUESTION FOR ANY REASON SUCH AS YOU DON'T KNOW, OR YOU DO NOT GIVE OUT THAT TYPE OF INFORMATION, SIMPLY RESPOND WITH "I DON'T KNOW." I WILL THEN PROCEED TO THE NEXT QUESTION. DO YOU HAVE ANY QUESTIONS?

INSTRUCTIONS FOR FORM B

This next section of questions concerns the different types of positions in your firm, the number of people employed, and the training required for the various jobs. (Hand a copy of the table to the interviewee.) This is a copy of the table I will be filling in if you care to follow along as I record the needed data. If this information is not readily available, your judgments and estimates are satisfactory. Positions of similar qualifications and training can be grouped together.

Section B — Under Section B we need the various job titles in your firm. This is where some positions can be grouped, such as laborers doing similar related jobs. What are some of the positions in your company?

Section C — How many people do you now employ in this position?

Section D — Have any of these employees been promoted to a different position in the last 12 months? How many? Have any left the firm in the last 12 months? How many?

Section E — Were any employees promoted to this position from within your firm during the past year? How many? How many people were hired into the firm to fill this job during the past 12 months?

Section F	Do you expect to hire any additional (name the job) other than the ones you now employ in the coming year? How many?
Section G	How much education must a person have to be considered for this job? What kind of training is required for this position?
Section H	Is experience absolutely required before a person is hired as a (name the job)?
Section I	Are there promotional possibilities from this job to a higher level job in your firm?

(Continue listing job titles under Section B and completing the form across until all jobs in the firm have been covered.)

COMPREHENSIVE MANPOWER STUDY

El Paso, Texas

1. Does your firm have any problem finding qualified employees?

   Yes (What specific jobs are involved?) No

   _____

   _____

   _____

2. Do you have to look for some personnel in other than the El Paso community?

   Yes (What specific jobs are involved?) No

   _____

   _____

   _____

3. From what sources do you obtain employees who require prior training?

   (Check Voluntary Responses in front of choice - Check Responses which are chosen after prompting in the blank to the right of the choice.)

   ___a. Present staff ___

   ___b. Private agency ___

   ___c. Secondary schools ___

   ___d. Proprietary schools ___

   ___e. Colleges & universities ___

   ___f. Public employment office ___

   ___g. Direct application ___

   ___h. Labor union ___

   ___i. Other (What other sources do you use?)

   _____

   _____

   _____

4. Would you like to see your prospective employees better trained in any skill?

   Yes (In what specific way would you like to see them better prepared?) No.

   _____

   _____

INTERVIEW FORM B

5. Of the technical skills and professional competence required for your operation, which need better training programs in colleges or technical schools?

_____ None

_____

_____

6. Does your firm train presently employed personnel for the purpose of promoting or advancing them?

Yes (What jobs are involved?) No

_____

_____

_____

6a. (If the answer to question 6 was yes, ask the following question.)

Would you rather have these people trained by a formal institution such as a college or technical school?

Yes No

7. Are there specific training courses that if taught by a vocational school or college would benefit your firm?

Yes (What specific courses do you have in mind?) No.

_____

_____

_____

8. Are there skill areas in your firm that are filled by the apprenticeship programs operated by labor unions? No

Yes (What skills are covered?)

_____

_____

APPENDIX D

ANALYSIS OF EMPLOYMENT POSITIONS BY CATEGORIES I, II, AND III

Table 12

Analysis of Employment Positions in El Paso

Category I Firms

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	2,185		39.26	
Left firm	3,381		60.74	
Total		5,566		17.96*
Employees brought into vacancies during last 12 months				
From within	2,258		37.30	
From outside	3,796		62.70	
Total		6,054		19.53*
New positions anticipated within next 12 months		2,068		6.67*
Education: employers indicating preference				
Less than high school graduate		150		16.18
High school graduate		267		28.91
Some post-high school vocational education		95		10.25
Two year post-high school technical grad.		63		6.80
Some college (1-3 years)		114		12.30
College graduate (4 years)		134		14.46
No preference		102		11.10
Training: employers indicating preference				
Formal on-the-job training		574		67.02
Apprenticeship training		62		7.23
No special training required		176		20.51
Other		44		5.24
Experience Required				
Yes responses		569		63.05
No responses		333		36.95
Promotional Opportunities				
Yes responses		724		83.82
No responses		140		16.18

*Percent of total positions analyzed—31,000

Table 13

Analysis of Employment Positions in El Paso

Category II Firms

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	245		20.76	
Left firm	935		79.24	
Total		1,180		34.67*
Employees brought into vacancies during last 12 months				
From within	216		20.77	
From outside	824		79.23	
Total		1,040		30.55*
New positions anticipated within next 12 months		658		19.33*
Education: employers indicating preference				
Less than high school graduate		45		8.56
High school graduate		203		38.58
Some post-high school vocational education		57		10.84
Two year post-high school technical grad.		31		5.89
Some college (1-3 years)		56		10.65
College graduate (4 years)		57		10.84
No preference		78		14.64
Training: employers indicating preference				
Formal on-the-job training		282		63.80
Apprenticeship training		58		13.12
No special training required		73		16.52
Other		29		6.56
Experience Required				
Yes responses		271		50.56
No responses		265		49.44
Promotional Opportunities				
Yes responses		358		73.66
No responses		128		26.34

*Percent of total positions analyzed— 3,404

Table 14

Analysis of Employment Positions in El Paso

Category III Firms

Column Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	13		11.71	
Left firm	98		88.29	
Total		111		24.13*
Employees brought into vacancies during last 12 months				
From within	18		11.92	
From outside	133		88.08	
Total		151		32.83*
New positions anticipated within next 12 months		83		18.04*
Education: employers indicating preference				
Less than high school graduate		30		18.42
High school graduate		52		32.24
Some post-high school vocational education		13		7.89
Two year post-high school technical grad.		10		5.92
Some college (1-3 years)		16		9.87
College graduate (4 years)		7		4.67
No preference		33		21.05
Training: employers indicating preference				
Formal on-the-job training		99		68.53
Apprenticeship training		8		5.59
No special training required		27		18.88
Other		11		6.99
Experience Required				
Yes responses		85		56.76
No responses		65		43.24
Promotional Opportunities				
Yes responses		94		68.38
No responses		44		31.62

*Percent of total positions analyzed — 460

APPENDIX E

ANALYSIS OF EMPLOYMENT POSITIONS BY INDUSTRIAL CATEGORY

Table 15

Analysis of Employment Positions in El Paso

Agriculture, Mining, Construction
SIC Group 100-199

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	99		36.13	
Left firm	175		63.87	
Total		274		31.39*
Employees brought into vacancies during last 12 months				
From within	87		37.34	
From outside	146		62.66	
Total		233		26.69*
New positions anticipated within next 12 months		90		10.31*
Education: employers indicating preference				
Less than high school graduate		5		4.30
High school graduate		27		23.28
Some post-high school vocational education		14		12.07
Two year post-high school technical grad.		3		2.59
Some college (1-3 years)		20		17.24
College graduate (4 years)		24		20.69
No preference		23		19.83
Training: employers indicating preference				
Formal on-the-job training		82		71.30
Apprenticeship training		15		13.04
No special training required		8		6.96
Other		10		8.70
Experience Required				
Yes responses		80		72.73
No responses		30		27.27
Promotional Opportunities				
Yes responses		96		86.49
No responses		15		13.51

*Percent of total positions analyzed—873

Table 16

Analysis of Employment Positions in El Paso

Manufacturing, Soft
SIC Group 200-299

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	145		12.31	
Left firm	1,033		87.69	
Total		1,178		20.50*
Employees brought into vacancies during last 12 months				
From within	153		12.53	
From outside	1,068		87.47	
Total		1,221		21.25*
New positions anticipated within next 12 months		755		13.41*
Education: employers indicating preference				
Less than high school graduate		22		12.50
High school graduate		62		35.23
Some post-high school vocational education		21		11.93
Two year post-high school technical grad.		14		7.95
Some college (1-3 years)		14		7.95
College graduate (4 years)		12		6.82
No preference		31		17.61
Training: employers indicating preference				
Formal on-the-job training		107		76.06
Apprenticeship training		14		9.86
No special training required		20		14.08
Other		0		0.00
Experience Required				
Yes responses		106		57.92
No responses		77		42.08
Promotional Opportunities				
Yes responses		138		82.63
No responses		29		17.37

*Percent of total positions analyzed—5,746

Table 17

Analysis of Employment Positions in El Paso

Manufacturing, Hard
SIC Group 300-399

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	16		4.37	
Left firm	350		95.63	
Total		366		22.86*
Employees brought into vacancies during last 12 months				
From within	43		9.07	
From outside	431		90.93	
Total		474		29.61*
New positions anticipated within next 12 months		521		32.54*
Education: employers indicating preference				
Less than high school graduate		46		29.41
High school graduate		43		27.45
Some post-high school vocational education		8		5.23
Two year post-high school technical grad.		14		9.15
Some college (1-3 years)		14		9.15
College graduate (4 years)		22		13.73
No preference		10		5.88
Training: employers indicating preference				
Formal on-the-job training		106		68.39
Apprenticeship training		13		8.39
No special training required		28		18.06
Other		8		5.16
Experience Required				
Yes responses		103		64.38
No responses		57		35.62
Promotional Opportunities				
Yes responses		101		78.29
No responses		28		21.71

*Percent of total positions analyzed— 1,601

Table 18

Analysis of Employment Positions in El Paso

Transportation, Communications, Utilities
SIC Group 400-499

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	1,522		65.69	
Left firm	795		34.31	
Total		2,317		30.07*
Employees brought into vacancies during last 12 months				
From within	1,488		62.29	
From outside	901		37.71	
Total		2,389		31.00*
New positions anticipated within next 12 months		307		3.98*
Education: employers indicating preference				
Less than high school graduate		15		20.27
High school graduate		27		36.49
Some post-high school vocational education		3		4.05
Two year post-high school technical grad.		6		8.11
Some college (1-3 years)		10		13.51
College graduate (4 years)		7		9.46
No preference		6		8.11
Training: employers indicating preference				
Formal on-the-job training		47		71.21
Apprenticeship training		6		9.09
No special training required		13		19.70
Other		0		0.00
Experience Required				
Yes responses		34		50.00
No responses		34		50.00
Promotional Opportunities				
Yes responses		62		86.11
No responses		10		13.89

*Percent of total positions analyzed—7,706

Table 19

Analysis of Employment Positions in El Paso

Wholesale and Retail Trade
SIC Group 500-599

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	182		15.58	
Left firm	986		84.42	
Total		1,168		22.98*
Employees brought into vacancies during last 12 months				
From within	261		21.66	
From outside	944		78.34	
Total		1,205		23.71*
New positions anticipated within next 12 months		660		12.98*
Education: employers indicating preference				
Less than high school graduate		50		10.86
High school graduate		153		33.49
Some post-high school vocational education		43		9.53
Two year post-high school technical grad.		28		6.21
Some college (1-3 years)		56		12.20
College graduate (4 years)		26		5.76
No preference		100		21.95
Training: employers indicating preference				
Formal on-the-job training		300		71.36
Apprenticeship training		28		6.68
No special training required		77		18.33
Other		16		3.58
Experience Required				
Yes responses		250		56.59
No responses		191		43.41
Promotional Opportunities				
Yes responses		320		74.53
No responses		109		25.47

*Percent of total positions analyzed—5,083

Table 20

Analysis of Employment Positions in El Paso

Finance, Insurance, Real Estate
SIC Group 600-699

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	134		33.08	
Left firm	271		66.92	
Total		405		29.39*
Employees brought into vacancies during last 12 months				
From within	99		24.32	
From outside	308		75.68	
Total		407		29.47*
New positions anticipated within next 12 months		244		17.67*
Education: employers indicating preference				
Less than high school graduate		33		20.12
High school graduate		57		34.76
Some post-high school vocational education		26		15.85
Two year post-high school technical grad.		11		6.71
Some college (1-3 years)		24		14.63
College graduate (4 years)		9		5.49
No preference		4		2.44
Training: employers indicating preference				
Formal on-the-job training		59		39.08
Apprenticeship training		9		5.96
No special training required		72		47.68
Other		11		7.28
Experience Required				
Yes responses		86		51.19
No responses		82		48.81
Promotional Opportunities				
Yes responses		139		89.68
No responses		16		10.32

*Percent of total positions analyzed—1,381

Table 21

Analysis of Employment Positions in El Paso

Services
SIC Group 700-799

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	27		7.90	
Left firm	315		92.10	
Total		342		34.00*
Employees brought into vacancies during last 12 months				
From within	46		10.43	
From outside	395		89.57	
Total		441		43.84*
New positions anticipated within next 12 months		104		10.34*
Education: employers indicating preference				
Less than high school graduate		31		15.42
High school graduate		87		43.28
Some post-high school vocational education		9		4.48
Two year post-high school technical grad.		12		5.97
Some college (1-3 years)		24		11.94
College graduate (4 years)		29		14.43
No preference		8		4.48
Training: employers indicating preference				
Formal on-the-job training		96		56.21
Apprenticeship training		16		9.47
No special training required		35		20.71
Other		24		13.61
Experience Required				
Yes responses		110		56.63
No responses		85		43.37
Promotional Opportunities				
Yes responses		133		73.63
No responses		48		26.37

*Percent of total positions analyzed—1,006

Table 22

Analysis of Employment Positions in El Paso

Medical, Health, Education, Legal
SIC Group 800-899

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	4		7.84	
Left firm	47		92.16	
Total		51		19.54*
Employees brought into vacancies during last 12 months				
From within	2		4.35	
From outside	44		95.65	
Total		46		17.63*
New positions anticipated within next 12 months		14		5.36*
Education: employers indicating preference				
Less than high school graduate		3		4.62
High school graduate		11		16.92
Some post-high school vocational education		4		6.15
Two year post-high school technical grad.		4		6.15
Some college (1-3 years)		3		4.62
College graduate (4 years)		19		29.23
No preference		21		32.31
Training: employers indicating preference				
Formal on-the-job training		23		71.88
Apprenticeship training		6		18.75
No special training required		1		3.13
Other		2		6.25
Experience Required				
Yes responses		17		27.42
No responses		44		70.97
Promotional Opportunities				
Yes responses		17		38.64
No responses		27		61.36

*Percent of total positions analyzed—261 .

Table 23

Analysis of Employment Positions in El Paso

Government
SIC Group 900-999

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	315		41.61	
Left firm	441		58.39	
Total		756		6.75*
Employees brought into vacancies during last 12 months				
From within	314		37.79	
From outside	518		62.21	
Total		832		7.42*
New positions anticipated within next 12 months		114		1.02*
Education: employers indicating preference				
Less than high school graduate		20		9.76
High school graduate		56		27.32
Some post-high school vocational education		36		17.56
Two year post-high school technical grad.		11		5.37
Some college (1-3 years)		21		10.24
College graduate (4 years)		51		24.88
No preference		10		4.88
Training: employers indicating preference				
Formal on-the-job training		134		70.10
Apprenticeship training		21		10.83
No special training required		22		11.34
Other		14		7.73
Experience Required				
Yes responses		139		69.15
No responses		62		30.85
Promotional Opportunities				
Yes responses		170		85.43
No responses		29		14.57

*Percent of total positions analyzed—11,207

APPENDIX F

ANALYSIS OF EMPLOYMENT POSITIONS BY OCCUPATIONAL CATEGORY

Table 24

Analysis of Employment Positions in El Paso

Professional Occupations
DOT Group 001-099

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	440		55.91	
Left firm	347		44.09	
Total		787		14.70*
Employees brought into vacancies during last 12 months				
From within	448		50.39	
From outside	441		49.61	
Total		889		16.60*
New positions anticipated within next 12 months		99		1.85*
Education: employers indicating preference				
Less than high school graduate		0		0.00
High school graduate		12		10.62
Some post-high school vocational education		7		6.19
Two year post-high school technical grad.		7		6.19
Some college (1-3 years)		17		15.04
College graduate (4 years)		70		61.95
No preference		0		0.00
Training: employers indicating preference				
Formal on-the-job training		64		64.00
Apprenticeship training		8		8.00
No special training required		12		12.00
Other		16		16.00
Experience Required				
Yes responses		78		69.91
No responses		34		30.09
Promotional Communities				
Yes responses		92		83.04
No responses		19		16.96

*Percent of total positions analyzed—5,355

Table 25

Analysis of Employment Positions in El Paso

Technical and Managerial Occupations
DOT Group 100-199

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	301		62.58	
Left firm	180		37.42	
Total		481		14.16*
Employees brought into vacancies during last 12 months				
From within	435		67.65	
From outside	208		32.35	
Total		643		18.93*
New positions anticipated within next 12 months		148		4.36*
Education: employers indicating preference				
Less than high school graduate		11		2.76
High school graduate		75		18.84
Some post-high school vocational education		18		4.52
Two year post-high school technical grad.		29		7.29
Some college (1-3 years)		94		23.62
College graduate (4 years)		112		28.14
No preference		59		14.82
Training: employers indicating preference				
Formal on-the-job training		276		79.37
Apprenticeship training		20		5.73
No special training required		30		8.60
Other		22		6.30
Experience Required				
Yes responses		304		77.81
No responses		87		21.94
Promotional Opportunities				
Yes responses		323		86.17
No responses		52		13.83

*Percent of total positions analyzed—3,397

Table 26

Analysis of Employment Positions in El Paso

Clerical and Sales Occupations
DOT Group 200-299

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	813		37.14	
Left firm	1,376		62.86	
Total		2,189		24.21*
Employees brought into vacancies during last 12 months				
From within	800		34.48	
From outside	1,520		65.52	
Total		2,320		25.66*
New positions anticipated within next 12 months		747		8.26*
Education: employers indicating preference				
Less than high school graduate		28		5.87
High school graduate		243		50.52
Some post-high school vocational education		70		14.47
Two year post-high school technical grad.		31		6.50
Some college (1-3 years)		61		12.58
College graduate (4 years)		9		1.89
No preference		39		8.18
Training: employers indicating preference				
Formal on-the-job training		268		63.88
Apprenticeship training		33		7.89
No special training required		93		22.25
Other		25		5.98
Experience Required				
Yes responses		213		44.84
No responses		263		[illegible].16
Promotional Opportunities				
Yes responses		369		81.42
No responses		84		18.58

*Percent of total positions analyzed—9,041

Table 27

Analysis of Employment Positions in El Paso

Service Occupations
DOT Group 300-399

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	88		22.22	
Left firm	308		77.78	
Total		396		15.47*
Employees brought into vacancies during last 12 months				
From within	48		10.53	
From outside	408		89.47	
Total		456		17.81*
New positions anticipated within next 12 months		194		7.58*
Education: employers indicating preference				
Less than high school graduate		50		41.32
High school graduate		42		34.71
Some post-high school vocational education		1		.83
Two year post-high school technical grad.		2		1.65
Some college (1-3 years)		5		4.13
College graduate (4 years)		1		.83
No preference		20		16.53
Training: employers indicating preference				
Formal on-the-job training		61		55.96
Apprenticeship training		8		7.34
No special training required		38		34.86
Other		2		1.83
Experience Required				
Yes responses		39		32.77
No responses		80		67.23
Promotional Opportunities				
Yes responses		76		67.86
No responses		36		32.14

*Percent of total positions analyzed— 2,560

Table 28

Analysis of Employment Positions in El Paso

Farming, Fishery, Forestry Occupations
DOT Group 400-499

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	0		0.00	
Left firm	144		100.00	
Total		144		105.88*
Employees brought into vacancies during last 12 months				
From within	0		0.00	
From outside	177		100.00	
Total		177		130.15*
New positions anticipated within next 12 months		49		36.03*
Education: employers indicating preference				
Less than high school graduate		1		14.29
High school graduate		2		28.57
Some post-high school vocational education		0		0.00
Two year post-high school technical grad.		0		0.00
Some college (1-3 years)		0		0.00
College graduate (4 years)		0		0.00
No preference		4		57.14
Training: employers indicating preference				
Formal on-the-job training		3		50.00
Apprenticeship training		1		16.67
No special training required		2		33.33
Other		0		0.00
Experience Required				
Yes responses		3		37.50
No responses		5		62.50
Promotional Opportunities				
Yes responses		3		42.86
No responses		4		57.14

*Percent of total positions analyzed— 136

Table 29

Analysis of Employment Positions in El Paso

Processing Occupations
DOT Group 500-599

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	38		18.27	
Left firm	170		81.73	
Total		208		16.88*
Employees brought into vacancies during last 12 months				
From within	76		31.93	
From outside	162		68.07	
Total		238		19.32*
New positions anticipated within next 12 months		141		11.44*
Education: employers indicating preference				
Less than high school graduate		13		28.26
High school graduate		16		34.78
Some post-high school vocational education		3		6.52
Two year post-high school technical grad.		3		6.52
Some college (1-3 years)		0		0.00
College graduate (4 years)		0		0.00
No preference		11		23.91
Training: employers indicating preference				
Formal on-the-job training		32		66.67
Apprenticeship training		2		4.16
No special training required		11		22.92
Other		3		6.25
Experience Required				
Yes responses		22		40.74
No responses		32		59.26
Promotional Opportunities				
Yes responses		34		69.39
No responses		15		30.61

*Percent of total positions analyzed—1,232

Table 30

Analysis of Employment Positions in El Paso

Machine Trades Occupations
DOT Group 600-699

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	74		43.28	
Left firm	97		56.72	
Total		171		13.23*
Employees brought into vacancies during last 12 months				
From within	138		66.35	
From outside	70		33.65	
Total		208		16.09*
New positions anticipated within next 12 months		53		4.10*
Education: employers indicating preference				
Less than high school graduate		18		18.75
High school graduate		31		32.29
Some post-high school vocational education		28		29.17
Two year post-high school technical grad.		9		9.38
Some college (1-3 years)		1		1.04
College graduate (4 years)		0		0.00
No preference		9		9.38
Training: employers indicating preference				
Formal on-the-job training		58		64.84
Apprenticeship training		19		20.88
No special training required		9		9.89
Other		4		4.40
Experience Required				
Yes responses		75		78.95
No responses		20		21.05
Promotional Opportunities				
Yes responses		60		75.00
No responses		20		25.00

*Percent of total positions analyzed— 1,293

Table 31

Analysis of Employment Positions in El Paso

Bench Work Occupations
DOT Group 700-799

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	112		10.05	
Left firm	1,003		89.95	
Total		1,115		24.36*
Employees brought into vacancies during last 12 months				
From within	123		9.75	
From outside	1,139		90.25	
Total		1,262		27.57*
New positions anticipated within next 12 months		992		21.67*
Education: employers indicating preference				
Less than high school graduate		14		23.33
High school graduate		14		23.33
Some post-high school vocational education		13		21.67
Two year post-high school technical grad.		5		8.33
Some college (1-3 years)		0		0.00
College graduate (4 years)		3		5.00
No preference		11		18.33
Training: employers indicating preference				
Formal on-the-job training		36		66.67
Apprenticeship training		5		9.26
No special training required		13		24.07
Other		0		0.00
Experience Required				
Yes responses		40		66.10
No responses		21		33.90
Promotional Opportunities				
Yes responses		35		67.31
No responses		17		32.69

*Percent of total positions analyzed—4,578

Table 32

Analysis of Employment Positions in El Paso

Structural Work Occupations
DOT Group 800-899

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	207		45.60	
Left firm	247		54.40	
Total		454		18.93*
Employees brought into vacancies during last 12 months				
From within	108		31.30	
From outside	237		68.70	
Total		345		14.39*
New positions anticipated within next 12 months		198		8.26*
Education: employers indicating preference				
Less than high school graduate		50		32.67
High school graduate		38		24.67
Some post-high school vocational education		11		7.33
Two year post-high school technical grad.		12		8.00
Some college (1-3 years)		3		2.00
College graduate (4 years)		1		.67
No preference		38		24.67
Training: employers indicating preference				
Formal on-the-job training		82		58.70
Apprenticeship training		23		16.67
No special training required		30		21.74
Other		5		2.90
Experience Required				
Yes responses		95		66.20
No responses		48		33.80
Promotional Opportunities				
Yes responses		92		74.59
No responses		31		25.41

*Percent of total positions analyzed—2,398

Table 33

Analysis of Employment Positions in El Paso

Miscellaneous Occupations
DOT Group 900-999

Columnar Headings	Number		Percent	
Employee Transition & Growth				
Employees who left positions during last 12 months				
Promoted	372		45.70	
Left firm	442		54.30	
Total		814		16.70*
Employees brought into vacancies during last 12 months				
From within	316		44.70	
From outside	391		55.30	
Total		707		14.51*
New positions anticipated within next 12 months		188		3.86*
Education: employers indicating preference				
Less than high school graduate		39		28.47
High school graduate		50		36.50
Some post-high school vocational education		14		10.22
Two year post-high school technical grad.		5		3.65
Some college (1-3 years)		5		3.65
College graduate (4 years)		2		1.46
No preference		23		16.06
Training: employers indicating preference				
Formal on-the-job training		74		57.69
Apprenticeship training		9		6.92
No special training required		38		29.23
Other		8		6.15
Experience Required				
Yes responses		56		42.75
No responses		75		57.25
Promotional Opportunities				
Yes responses		92		73.60
No responses		33		26.40

*Percent of total positions analyzed—4,874

APPENDIX G

LIST OF OPEN RESPONSES TO FORM C (APPENDIX B)

List 1--Responses to Question One

Accountants	8	Engineers	1
Aggressiveness	1	Engineers, Civil	1
Air Conditioning	1	Engineer, Industrial	1
Appliance Service	1	Engineer, Project	1
Appraising, Commercial	1	Engineers, Senior	1
Architects	2	Engraver	1
Arithmetic	1	Equipment Operator	1
Bakers	2	Estimator	3
Banking	1	Felled Seam Operator	1
Beauticians	2	Fence Erectors	1
Bindery Man	2	Front Desk Clerk	4
Bodymen, Automobile	1	General Office	1
Boilermakers	1	Glaziers	1
Boners	1	Grinder	1
Bookkeeping	3	Handling Furniture	1
Bootmakers	1	Handle Heavy Equipment	1
Bumper Straighteners	1	Installer	1
Buyers	2	Instructors, Exercise	1
Camera Repairmen	1	Insurance	1
Carpenters	3	Inventory Controls	1
Cashier	6	Keypunch	1
Checker, Food	1	Knowledge of City	1
Checker, Grocery	1	Latherers & Plasterers	1
Chemist	1	Leadership	1
Child Development Spec.	1	Leather Craft	1
Claim Representative	1	Librarian	1
Color Printer Operator	1	Load Trucks	1
Composer, Layout	1	Machine Operator	2
Compositor	1	Machinist	3
Construction Supt.	1	Machinist, Automotive	1
Cook	2	Maintenance Men	2
Cooks, Pantry	1	Management	5
Credit Sales Personnel	1	Manager, Department	1
Data Processing	1	Manager, Plant	2
Driver	2	Manufacturing	1
Drivers, Bus	1	Markers	1
Drivers, Truck	4	Mechanics	11
Draftsmen	1	Mechanics, Aircraft	1
Earth Movers	1	Mechanics, Automobile	1
Electrician	7	Mechanics, Cycle	1

List 1 (continued)

Mechanics, Diesel	2
Merchandising	1
Metal Building Erector	1
Motivation	1
Moulder	1
Night Shift Personnel	1
Nurse, Licensed Vocational	1
Nurse, Registered	1
Nutritional Counselor	1
Office	1
Office Clerks	1
Operating Engineer	1
Operators	1
Packing	2
Painting	2
Partsman, Automotive	2
Pattern Makers	2
Pipe Fitters	1
Platemaker	1
Plumbing	2
Polishers	1
Presser	1
Pressmen	2
Printer	3
Production	1
Professional, Bilingual	1
Public Relations	1
Purchasing	1
Quality Control	1
Rate Clerk	1
Real Estate	2
Record Keeping	1
Refinishing	1
Responsibility	2
Roofers	2
Sales	21
Sales, Office Equipment	1
Salesmen, Hardware	1
Seamstress	1
Secretary	11
Self-confidence	1
Service, Stereo	1
Servicemen	3
Servicemen, Refrigeration	1
Sewing Machine Operator	1
Sheet Metal	2
Social Workers	2
Staffing Spec.	1
Stenographer	1
Stockboys, Hardware	1
Supervision	1
Switchboard Operator	1
Tailors	1
Technical Jobs	1
Technician, Line	1
Technician, Medical	1
Tinters	1
Tool Maker	1
TV Service	2
Typist, Clerk	1
Typist, Statistical	1
Unarmed Defense	1
Underwriters	1
Upholstery	1
Use of Weapons	1
Waiters	1
Waitress, Cocktail	1
Warehousemen	1
Watch Making	1
Welders, Certified	4
Work Planning	1

List 2--Responses to Question Two

Account Executives	1	Pipe Welders	1
Appraisers, Real Estate	1	Pipe Fitters	1
Appraising, Commercial	1	Platers	1
Art Directors	1	Polishers	1
Attorneys	1	Pressman	2
Bindery Men	1	Printer	2
Bumper Straighteners	1	Professional	1
Buyers	2	Sales	1
Chemist	1	Social Workers	2
Child Development Spec.	1	Some Teaching Fields	1
Claim Representatives	1	Technician, Cable TV	1
Community Organization	1	Technician, Food Canning	1
Computer Science	1	Technician, Microwave	1
Construction Supt.	1	Underwriters	2
Copywriters	2		
Data Processing	1		
Education Professionals	1		
Engineering	1		
Engineer, Civil	1		
Engineer, Production	1		
Engineer, Senior	1		
Engineer, Textile	1		
Engravers	1		
Funding Insurance	1		
Grinders	1		
Instructors	1		
Journeymen	1		
Leather Craft	1		
Legal	1		
Lending Officers	1		
Librarian, Professional	1		
Managers	4		
Manager, Plant	1		
Manager, Shelling Plant	1		
Management, Mdse.	1		
Mechanics	1		
Mechanics, Diesel	1		
Mechanics, Refrigeration	1		
Meteorologists	1		
Musicians	1		

List 3--Responses to Question Three

Advertise	3
BRAVO	1
Claim Representative	1
Competing Firms	4
El Paso Technical School	1
Field Contact Man	1
Golf People	1
Law School	1
Mexico	1
Military	1
Minority Organization	1
Nation-wide Exams	1
National Personnel Reserve Pools	1
Newspaper Ads	12
Operation Transition US Army	1
Other Organizations in Our Company	1
Other Cable TV Companies	1
Personal Contact	1
Professional Trades	1
Referrals	1
SER	1
Technical Schools	1
Underwriters	1
Word of Mouth	1

List 4--Responses to Question Four

Accounting	3	Engineers, Electrical	1
Arithmetic	3	English Language	2
All Areas	3	Engraver	1
Appraiser, Commercial	1	Estimators	1
Appraiser, Real Estate	1	Fell Seam Operator	1
Art Directors	1	Front Desk Employee	1
Auditing	1	Hair Style	1
Auto. Diagnosis & Repair	14	Handling Money	2
Bakers, Bench	1	Handwriting	2
Baking	1	Human Relations	2
Banking	1	Insurance	1
Basic Education	3	Knowledge, Sec. Sch. Curr.	1
Bodymen, Automobile	1	Leadership	1
Boner	1	Leather Craft	1
Bookkeeping	2	Letter Writing, Office	1
Bookkeeping Machine Oper.	1	Maintenance Men	1
Bootmakers	1	Management	2
Building Trades	1	Markers	1
Business	1	Marksmanship	1
Calculating Machine	1	Meat Cutters	2
Carpentry	1	Mechanic, Diesel	1
Cashier	4	Merchandising	1
Chemist		Night Clerks	1
Clerical	2	Night Auditor	1
Color	1	Office Procedure	1
Communication	1	Painter	2
Computer Operator	1	Pattern Maker	1
Cooks	1	Personal Defense	1
Copywriters	1	Physics	1
Credit Procedures	1	Physiology	1
Cut Hair	1	Plumber	2
Data Processing	2	Pole Climbing	1
Driver, Loader	1	Police Duty	1
Drug Clerks	1	Pressman	1
Electricians	5	Printer	1
Electricity, Basic	1	Problem Solv. Techniques	1
Electronics	1	Public Relations	3
Electronics, Basic	1	Rate Clerk	1
Employee Counselor	1	Refinishing	1
Engineers	1	Report Writing	1

List 4 (continued)

Sales	9
Secretarial	9
Securities	1
Service, Appliance	1
Service, Refrigeration	2
Sewing Machine Operator	2
Sewing Machine Repair	2
Sheetmetal	2
Shippers	1
Shorthand	3
Sign Painter	1
Social Worker	1
Sociology	1
Speaking to Public	1
Split Dollars Funding	1
Stenographer	1
Superintendent	1
Technicians	1
Tellers	1
Travel Counselor	1
Truck Driver	1
TV Service	1
Typing	5
Typing, Statistical	1
Waiters	1
Waitress, Cocktail	1
Watch Making	1
Welder	1
Woodworking Methods	1
Work Organization Charts	1

List 5--Responses to Question Five

All Skills	1
Art Directors	1
Auditing	1
Auto. Air Conditioning	1
Bacteriology	1
Bakery Engineering	1
Blueprint Reading	1
Bookkeeping	5
Brake Work	1
Business	1
Business Machines	1
Carpentry	1
Cash Dispensing	1
Chemical	1
Claims Men	1
Clerical	5
Color Negative Classifier	1
Color Print Knowledge	1
Communications	1
Computer Systems Analyst	1
Construction	1
Copywriter	1
Credit	1
Dealing with Public	5
Drafting	3
Electrical	3
Electronics	3
Engineers	3
Engineer, Electrical	2
Engineer, Industrial	1
Engineer, Mechanical	1
Engineer, Safety	1
English Grammar	1
Estimators	2
Financing	1
Food Processing	1
Functions	1
Human Relations	3
Industry Analyst	1
Insurance	1
Interview Technician	1
Inventory Control	1
Latherers	1
Leather Craft	1
Library Professional	1
Machine Operator	1
Machinist	1
Machinist, Automotive	1
Manager	2
Manufacturing Supt.	1
Mathematics	1
Mechanics, Automobile	10
Mechanics, Diesel	1
Mechanics, Transmission	1
Merchandising	2
Office Business Courses	1
Plant Operator	1
Plasterers	1
Plumbing	2
Printing Trade	1
Production	1
Production Control Meth.	5
Quality Control	1
Refinishing	1
Refrigeration	1
Roofers	1
Sales	10
Secretary	6
Service, Appliance	1
Sewing Machine Operator	1
Sheet Metal	2
Sheet Rockers	1
Sociology	1
Speech	1
Supervisors	2
Time Motion Studies	1
Transportation	1
Trouble Shoot, Auto.	1
Typing	1
Unarmed Defense	1
Underwriters	1
Use of Weapons	1
Vocational Counseling	1
Watch Making	1
Welding	1

List 6--Responses to Question Six

Accounting	4	Engineering	3
Administration	2	Estimators	3
Adoption Work	1	Fabric Cutters	1
Air Conditioning	1	Fell Seam	1
All Areas	16	Field Counselors	1
Asst. Factory Manager	1	Foreman	1
Asst. Mdse. Buyer	1	Grinders	1
Attendants	1	Heating	1
Bank Positions	1	Hammers	1
Bartenders	1	Inspection	1
Bookkeeping	4	Installing	1
Bumper Straighteners	1	Instructors	1
Busboys	2	Instrument Man	1
Business	1	Insurance	1
Buying	1	Investigation	1
Cabinet Makers	1	Keypunch	1
Cashiers	8	Kitchen Help	1
Chemicals	2	Knowledge of Meat	1
Claims Men	1	Knowledge of Produce	1
Clerical, Basic	1	Leather Craft	1
Clerks	2	Librarian, Professional	1
Collector	1	Library Assistant	1
Color Film Processing	3	Machinist	3
Conductor	1	Machinist, Automotive	1
Cooking	2	Maintenance	1
Crafts	1	Make Loans	1
Credit	1	Making Fast Decisions	1
Data Processing	2	Managers	20
Dealing with People	9	Manager, Grocery Store	1
Delegation of Duties	1	Manufacture Counter Tops	1
Designer	1	Mechanics	4
Desk Clerks	1	Mechanics, Diesel	2
Dictaphone Training	1	Merchandising	3
Division Staff	1	Night Auditor	1
Dock Work	1	Office Procedures	6
Drafting	2	Operating Engineers	1
Drivers, Bus	1	Packers & Drivers	1
Drivers, Truck	1	Paint Makers	1
Electrical	4	Painters	1
Electronics	1	Parts Men	2

List 6 (continued)

Pattern Makers	1
Pecan Shelling	1
Personnel Relations	1
Photo Engravers	1
Platers	1
Plumbing	2
Polishers	1
Printing Skills	1
Production	3
Program Directors	1
Public Relations	1
Purchasing	1
Sales	25
Secretarial	1
Service	1
Service, Appliance	2
Service, Range	1
Service, Refrigeration	1
Service, Washer	1
Sewing Machine Operator	2
Sheet Metal	3
Shorthand	1
Staffing Spec.	1
Stenographer	1
Superintendent	1
Surveying	1
Technical Skills	1
Technician, Food	1
Technician, Laboratory	1
Technician, TV	1
Technician, TV Studio	1
Teller	2
Ticket Agents	1
Tinters	1
Tire Service	1
Trial Technique	1
Typing	2
Underwriters	1
Value of Merchandise	1
Waiters	2
Warehousemen, Hardware	1
Welding	5

List 7--Responses to Question Eight

Accounting	6	Freight Transportation	1
Adolescent Psychology	1	Fundamentals of Trade	1
Air Conditioning Install.	1	Gardening	1
All Skills	1	Glass Blowers	1
Auto. Air Conditioning	1	Glaziers	1
Bakers	1	Graphic Arts	1
Bakery Engineering	1	Grocery Business	1
Banking	1	Handling Money	2
Basic Education	1	Heating & Cooling	1
Bookkeeping	5	Housekeeping	1
Blueprint Reading	4	Human Relations	2
Bodymen, Automobile	1	Income Tax Preparation	1
Bootmakers	1	Insurance	3
Busboys' Course	1	Interview Techniques	1
Business	3	Keypunch	1
Business Management	1	Law Courses	1
Business Mathematics	1	Layout Torchwork	1
Carpentry	2	Leadership	2
Canning Process	1	Leather Craft	1
Case Work	1	Library Science	1
Checker, Food	1	Meat Cutting	1
Chemical Plant Operator	1	Machinist, Automotive	1
Clerical	2	Maintenance Men	1
Clerking	1	Management	9
Collection Procedures	1	Mathematics	4
Communication	1	Mechanic, Automobile	6
Construction Contracting	1	Mechanic, Cycle	1
Cooks	2	Mechanic, Diesel	2
Craft Skills	1	Mechanic, Line	1
Credit Extension	1	Mechanic, Transmission	2
Cutters	1	Merchandising	2
Design	1	Office Clerks	1
Drafting	3	Painter	1
Driving	1	Personnel Relations	1
Electrical	2	Physics	1
Electricity, Basic	1	Pipe Fitting	1
Electronics, Advanced	1	Plumbing	1
Electronics, Basic	3	Pole Climbing	1
Engineer, Electrical	1	Problem Solving	1
English	1	Public Relations	6

List 7 (continued)

Refinishing	1
Sales	6
Sales, Route	1
Secretarial	6
Service, Appliance	4
Sewing Machine Operator	4
Sheet Metal	2
Sheet Metal Drafting	1
Shorthand	1
Social Behavior	1
Supervision	5
Surveying	1
Tariff and Rates	1
Teamwork	1
Technician, Test	1
Trade Mathematics Course	1
Train People to Think	1
Types of Plastic	1
Typing	3
Typing, Statistical	1
Unarmed Defense	1
Use of Weapons	1
Use of Woodworking Tools	1
Vocational Counselor	1
Waiters	2
Watch Making	1
Welders	6
Window Trimming	1
Work Organization	1

List 8--Responses to Question Nine

Boiler Makers	1
Building Trades	2
Construction Crafts	1
Electricians	3
Engraver	1
Ironworkers	1
Machinists	1
Maintenance	2
Mechanics, Locomotive Diesel-Electric	2
Mechanics, Sewing Machine	1
Operating Engineers	1
Pipe Fitters	2
Plumbers	2
Pressman	1
Printers	1
Refrigeration	1
Sheet Metal	3
Welders	1

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